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PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

convenes the

NINTH MEETING

ADVISORY BOARD ON

RADIATION AND WORKER HEALTH

ABRWH SUBCOMMITTEE MEETING

The verbatim transcript of the Subcommittee Meeting of the Advisory Board on Radiation and Worker Health held at the Doubletree Oak Ridge, Oak Ridge, Tennessee, on January 24, 2006.

C O N T E N T S

January 24, 2006

TRANSCRIPT LEGEND

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DR. JOHN MAURO, SC&A

MR. STUART HINNEFELD, NIOSH

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P R O C E E D I N G S

(9:10 a.m.)

WELCOME AND OPENING COMMENTS
DR. PAUL ZIEMER, CHAIR
DR. LEWIS WADE, EXECUTIVE SECRETARY

DR. ZIEMER: Good morning, everyone. If you'll please take your seats, we're going to begin our morning session. Welcome, everyone. The Advisory Board on Radiation and Worker Health is pleased to be here in Oak Ridge again. We met here some time back, I forget the exact date, but we're pleased to return here again to Oak Ridge and -- not only a place that carries some bit of sentiment for some of the Board members, but also opportunity to meet many folks who've worked here -- in some cases for their whole working lives.

This morning's session is actually not a meeting of the Board. It's a meeting of the subcommittee -- of a subcommittee of the Board, although you'll see a good fraction of the Board members are actually here present with us. But until 2:00 this afternoon we will be in session as a subcommittee, and then the full Board will meet beginning at 2:00 o'clock this afternoon.

We'd like to ask everyone -- Board members, Federal staff people, and members of the public -- to register their attendance with us. Now I noticed when I came in, and probably when most of you came in, the registration book was not there. You didn't realize that but it was supposed to be there. And you didn't miss it at all but the Board members did. It will be out there I think by break time and, as you have a chance, please sign your name in that book so we have a record of your attendance with us here today.

Also for members of the public there will be a sign-up booklet for you if you wish to make public comment later in the day. We have a public comment session late this afternoon at 5:30, and if you wish to make public comment we ask that you sign up so we have some idea of how many will be addressing us and we can allot the time accordingly.

On the table over here in the far side there are a number of handouts which include today's agenda, copies of materials that the Board will be discussing, so that -- please avail yourself of those materials as you see fit.

I'm going to introduce Dr. Lewis Wade, who's the Designated Federal Official for this Advisory Board, and Dr. Wade has a few initial comments as well. Dr. Wade.

DR. WADE: Thank you, Paul. Only to -- to join Paul in welcoming you to this meeting. For the next three days, we'll be heavily involved in a number of issues. And this Board believes in transparency in all that it does, so we encourage you to be here and to listen. We do have two public comment periods; one today from 5:30 to 6:30 and one tomorrow evening from 7:00 to 8:30. And again, we welcome your comment.

I bring you regards from the Secretary of HHS, also from the Director of CDC and from the Director of NIOSH.

We do reserve the right to be a bit flexible with the agenda. One of our members, Mark Griffon, is delayed in reaching us. He started out in a snowstorm in Boston and will join us mid-morning. As Mark has had the lead on the discussion of the Y-12 site profile, I've suggested to the Chair that we delay that until Mark arrives. We'll have the full discussion, but I think it would be best had with Mark

here, and we'll start then with the Rocky Flats site profile discussion.

As should be my practice and hopefully will be my practice, before we start any discussion I'll identify to you if there are any conflicts on the part of any members of the Board. In order to get a Board that's capable of doing what we ask this Board to do, these people have experiences throughout the industry that we're serving and therefore from time to time there are conflicts. If there are conflicts, we'll identify them and specify to you how those conflicts will be dealt with. As it turns out, there are no conflicts on the Board for Rocky Flats, so my first report is that there are no conflicts.

ROCKY FLATS SITE PROFILE
PRESENTATION OF MATRIX AND DISCUSSION
MR. JOE FITZGERALD, SC&A
DR. JIM NETON, NIOSH/SC&A

DR. ZIEMER: Thank you very much, Lew. We will then proceed as suggested with the discussion of the Rocky Flats site profile. We have a presentation from the Board's contractor, SC&A. The discussion will be led by Joe Fitzgerald, and then following that we will hear from NIOSH and Dr. Neton. So Joe, if you'll kick off this

discussion, please.

DR. WADE: And just to make sure that we all have the right papers, we have Joe's presentation in front of you. There's also Jim Neton's comments, and then we have the latest copy of the matrix or the matrices we use filled out for Rocky Flats. That should all be in front of you now.

DR. ZIEMER: Right.

DR. WADE: And copies on the table.

DR. ZIEMER: And I might just mention, particularly for members of the public, the matrix that we're referring to is a document that flows out of the review by the Board. It all begins with the site profile which is developed by NIOSH. This is true of Rocky Flats; it's also true of Y-12 and other sites. There's an official site profile. Then the Board reviews the site profile and the contractor assists the Board in that review, and so as an outcome of that review a number of issues are identified. These issues are identified in the matrix. They are issues that are raised on behalf of the Board by the contractor, and then in turn NIOSH reviews

those issues and develops a response. That response may be yes, we agree with that issue or with that particular item that has been raised or we disagree with their finding, or perhaps some middle ground may be reached, and ultimately the Board then will take a final action item by item. So the matrix is a way of tracking the issues that are raised as the Board's contractor reviews the site profile. So with that as background, Joe, if you'll proceed.

MR. FITZGERALD: Thank you, Dr. Ziemer. Good morning, everybody.

What I'm going to present is really highlights of the matrix. The matrix I think is over here on the table. And I'm not going to repeat that and go line by line, but I want to just go ahead and cover that and I think Brant from NIOSH will also provide some perspectives as well.

A little background, particularly for those who aren't familiar with the review, this review was done last summer. It went through classification review, actually was submitted to the Board and NIOSH on December 8th. And

this is really the advent of the issue resolution process. We haven't had a dialogue with NIOSH, and I think this is the point where clearly we're going to begin talking about some of these issues. Some of these issues may in fact have answers. We have not had that exchange yet, so this is almost a snapshot in time going back to when this was submitted December 8th. The matrix itself went in mid-December.

Okay. In any case, in terms of highlights, the primary issue that I think we felt very strongly about and would hope to have some discussions on is the use of the median MDA values for plutonium and americium at Rocky. We feel in particular this is important because, again, given the low thresholds in terms of measurement of plutonium and americium, how one handles the MDA value, how one applies that and what one does in the instance where you have in fact zeroes in background recorded readings -- and Rocky Flats actually, given the history, looking at the data, there are a number of instances, particularly in the early years where you in

fact see a lot of zeroes in backgrounds recorded -- and certainly there's a lot of documentation to how that was handled, but also some questions and ambiguities about how that -- those -- that got (unintelligible) interpreted and when in fact (unintelligible) background recorded.

In this particular issue, though, there's two issues. One, how the MDA is defined is very critical, and in this case we are concerned about the variables, the factors that go into defining the MDA according to ANSI standards, and what we're reading in the TBD. And again, we haven't had a chance to really get behind some of these words and talk about the basis involved, but clearly going back into the '50s one is trying to figure out how these MDAs were developed, how they were applied. And what concerns us is, given the thresholds we're talking about and the low level of measurement in the urine, words like "typical" and "theoretical" -- typical counting times of 150 minutes, for example; a theoretical upper-bound detector counting efficiency; assumed sample values in this case equal to 24-hour urine

samples, and so on and so forth. The question we're really getting to is, how precise can one be given the amount of time involved and given the records, in terms of coming up with an MDA that would be applied across the board; and does one need to cut a little bit of -- not slack, but some margin, given the fact that there are some uncertainties involved, clearly. And I think that the TBD attempts to provide some bounds to this, but in the process clearly points to the uncertainties involved in all these parameters. And again, the record is not clear and there is certainly uncertainty perhaps compounded on uncertainty. So here the concern is, can you in fact come up with median MDAs that are in fact quantitative and based in -- in the record.

And beyond that question is the question of whether in fact, given the way background and zero values were applied at Rocky Flats, whether in fact the MDA value may be non-conservative in the final analysis. And the history is the fact that urinalysis results less than ten percent of the tolerance level, and the tolerance level was the maximum value

that -- action level that was permissible for urine counts for Pu and americium. And values that were less than ten percent of that level were not recorded. And for plutonium that comes to .88 dpm per 24 hours, and for enriched uranium of course, 8.8 (unintelligible) point per hour, and I guess the implication there is -- implies that when you get below those threshold values, those values are what's inferred as going to be recorded as zero or background, and this in fact may be in excess of some of the MDA values that would be averaged and used and applied. And our concern is that that's not going to be conservative. In fact, that's going to skew the data quite a bit, and what we're interested in finding out a bit more is how in fact is NIOSH addressing that particular issue and is there any additional information that wasn't in the TBD that could be forthcoming to rationalize this. So the history is murky. Certainly the implication is there that in fact, given the practice of assigning these values of background zero, using median MDA values may in fact be inappropriate and not technically

founded.
Another issue, this low or insoluble Pu, we -- we've had this issue and this issue came up with -- certainly in our Y-12 report and other instances. Another terminology, I think high fired's been used. Certainly our concern here is that -- we've converged with NIOSH on this particular issue in the sense that we've -- in the final analysis, with regards to the solubility class, if someone in fact gets a intake -- uptake of plutonium in the lung, it's not going to change the dose reconstruction bottom line significantly. It's going to be in fact something that will be significant addressed as such. However, what we're concerned about is the fact that you have events -- you have instances where an acute intake of insoluble plutonium may in fact give you situations where you're not going to see it as readily and you're going to have situations where, if -- if not lung, you're going to have systemic organs, GI organs that may be critical, and it's going to depend on the type of cancer, so this is almost one where we've come very close to agreeing that overall it's

not going to be as significant as we once thought it might be. However, I think there's going to be instances where, if the target organ is not the lung, in fact is the GI organs, it may in fact play a role, may be significant, something that can't be discounted.

DR. ZIEMER: Joe let me interrupt just a moment. Could you clarify then -- what you're saying in general, this doesn't appear to be a significant issue but there may be individual cases where it would --

MR. FITZGERALD: Yeah. I think what we're saying here is that -- you know, we went into this concerned that -- you know, again, the high fired or insoluble plutonium issue was something that we had seen at other sites. Certainly it figured in the debates at Rocky and the deliberations with Rocky. We looked at that particular issue; we certainly had a number of discussions with NIOSH and the technical staffs. I think the bottom line on that is that it's not going to ultimately make a significant amount of difference in terms of the activity in the lung and in terms of dose

reconstruction what the outcome would be. However, we have two situations where we're concerned. That for events or acute exposures, it's not clear that you would not have a situation where this is not being addressed adequately. For instances where you're dealing with a target organ that's other than the lung, you're dealing with the GI tract or whatever -- you know, the systemic organs -- it's again not clear that that might not be a significant contributor of dose. So in those instances the S -- or super S as you might call it -- plutonium might actually be a factor and should be -- a contributor and something that's treated in the analysis. So just those two exceptions -- not as broad as it was at one time, not as significant as it was at one time, but certainly something that can't be ignored. In this particular instance, you know, certainly the neutron exposure issue, particularly with NTA film, was a key issue at Rocky Flats. Certainly there was a neutron dose reconstruction program that was run over the past several years, if not longer, that has come up with a factor that would correct for

the misreading of the NTA film at Rocky Flats. And I think this -- you know, this group, this Board, is familiar with some of the NTA issues at Rocky Flats. Clearly it was recognized early on, they went back and tried to reconstruct how these NTA films were read, how they in fact needed to be corrected, and there's a report that was issued this past year that wasn't acknowledged or reflected in the TBD because, again, the site profile came out before that, but clearly would provide some of those factors. What we're saying in the review, though, quite apart from the extent to which that may correct for the NTA film readings, for those energies, you have neutron energies at Rocky Flats that actually fall below the threshold of NTA. So this reconstruction program may not give you much in that regard. I think the tack there would be similar to what we're taking with Y-12, that certainly one has to consider what correction factors, really what energies may exist at the site that may fall below the NTA threshold. That wasn't evident in the site profile. Also it doesn't address -- this is, again, the

NDRP program, this reconstruction program does not address non-plutonium workers. In other words, sources of neutrons that may exist outside the Pu process lines, and for energies that would fall outside of that. Again, this so-called neutron dose reconstruction program, the NDRP, focused on trying to correct for the NTA energies -- or the NTA readings, records that existed. So anything outside that scope is still problematic in terms of neutrons. And so what we're pointing out is, in order to have the complete picture at Rocky, one has to be careful about looking at the possibility of energies that would fall below those energies in the thermal range, and also look at non-Pu workers elsewhere in the plant as well.

I think we also pointed out in the site profile that it's important from a coworker standpoint to look at job categories. We're, you know, aware that a lot of this data was developed by the University of Colorado and that, again, NIOSH has had some difficulty getting that information out of the University of Colorado, so we're I guess affirming that that's important. We're affirming that they're doing

the right thing, but we're also acknowledging that it's been difficult to get ahold of. So again, we think that's pretty critical information and that's going to help certainly develop some of the answers we're talking about.

We're particularly concerned about the -- I'm going to use the word data reliability. I think we finally came to that conclusion, that was the right word terminology so we'll use data reliability. But in the report we talk about data integrity, and I think, again, our concern here is that, given the lengthy history at Rocky Flats and a lot of the documentation investigations, our concern here is the integrity of the data, the reliability of this record to be used for dose reconstruction. And here we're concerned about a number of issues that, you know, collectively raise questions, and we don't have answers. I think this is a point of departure where we think the site profile would go a long ways to inform the dose reconstruction process by providing some perspectives on these issues. But for example, the potential problems with algorithm and

dosimeter calibrations, that was the subject of a major GAO investigation maybe ten years ago where there was a lot of concerns about whether in fact the dosimeters were calibrated correctly and what the implications for miscalibration would be. And again, we feel that that isn't treated sufficiently and the implications aren't addressed sufficiently in the site profile. What does it mean, in fact, to acknowledge and have this addressed in a GAO investigation, that in fact the dosimeter calibrations are faulty? And we think that needs to be addressed clearly.

Issues of placement of dosimeters -- this is not a new issue. We certainly have addressed this at Pantex and at Iowa. This question seems to crop up in different sites for the same reasons. But again, I think this is something that would be very helpful to have addressed in the site profile.

Dosimeters not worn and improperly worn -- interviews with workers, looking at documentation, even internal DOE oversight reviews, you know, there's, again, a history where certain groups of workers, certain

workers clearly did not wear or improperly wore dosimeters. And the implication there is in the following bullet, which is in a number of cases the policy for not getting a returned dosimeter could be very well to assign a zero or no data available. The policy shifted over time, but clearly in terms of the data base there's instances where decisions were made when a dosimeter was missing, when a certain reading fell below a threshold, and what have you, to in fact make an administrative decision to assign a zero, a null (unintelligible), a null dose or a no data available factor, all of which I think conflates the question of, you know, is there in fact a real dose there and how is that missing dose going to be addressed? And again, I think that needs to be developed further in order to address the reliability of this broad and lengthy database that we're dealing with at Rocky Flats.

Another interesting factor is the presence of blank readings, which I don't think I've seen at other sites, but blank readings are ones where you don't really have a zero -- well, you don't even have a number, but it's recorded as a

blank. And prior to '64 those were instances where somebody was assigned a security badge with a dosimeter, but they essentially only had the security badge, they didn't have the dosimeter. After '64, of course the wearing of the combined badge and dosimeter was required, so one would expect not to see blanks after '64. In a cursory view of the database, we are seeing blanks -- not many, but seeing blanks after '64. So that's another issue which, by itself, may not be the earth-shaking issue, but collectively I think it gets to -- just wanted to make sure there's a clear picture of policy and practice in terms of the actual data itself over time.

And I guess the last item is the question of unmonitored neutron exposures and there the concern is that the early years, where the program was relatively primitive, the issue was not really having a good handle on what was in fact recorded in terms of neutron exposures, whether in fact there was a lot of unmonitored neutron exposures. And not surprisingly so, either, in the early 50's.

One thing we're trying to do is trying to shape

some sense of priority. We did cover a lot of ground, there's a lot of findings, and certainly I wanted to highlight those preceding findings as ones that we think we need to dig into, along with NIOSH and the Board. There's other issues -- not to say that these issues aren't important, in fact they are important, but they're probably more in the technical clarification or in the technical basis side of things. And again, I think these are easily addressed and I think, given our experience in issue resolution, we'll get some answers fairly quickly. I'm not going to go through these. I think you can read them for yourself. But certainly these are questions that came up in our review.

You have the matrix that we submitted. Again, that gets into a pretty big cataloging of issues. I guess my question is, is there any questions or anything else that you want to address?

DR. ZIEMER: Thank you, Joe. Let me pose a couple of questions and then other Board members may have some. Could you clarify the difficulty in obtaining the records from

University of Colorado? Is that just an issue of finding them, or is there an administrative difficulty in actually having them release them, or what's the nature of the issue?

MR. FITZGERALD: Well, I'll defer to NIOSH, but my understanding is just a matter of -- you know, they -- they -- this data, this information was developed by University in conjunction with DOE. And the ability of NIOSH to in fact gain access to and receive it from the University, not being a government agency, certainly that has been part of --

DR. ZIEMER: I wondered if they were having trouble finding the records--

MR. FITZGERALD: Oh, no, I don't think that's the issue, but I'll defer to Jim --

DR. ZIEMER: Okay.

MR. FITZGERALD: -- since the office of NIOSH has been doing this.

DR. ZIEMER: Ownership issue. Jim Neton.

DR. NETON: Yeah, this is Jim Neton. This is the data that were collected as part of a study that was actually funded by NIOSH. The Health-related Energy Research Branch funded a study to have the University of Colorado go out and

reconstruct internal/external doses for workers at Rocky Flats, and we're trying to obtain the raw database essentially, the individual data that were collected for that study, and we're just having a little difficulty getting it out of the University at this point. It's a matter of format and shape and is there additional work required to get that to us, that sort of thing, but we're working very diligently to try to get that information.

DR. ZIEMER: Thank you. And Joe, could you clarify, or perhaps Jim, when you say -- talking about the blanks, does the record actually show nothing or does it have some wording that…s -- what --

MR. FITZGERALD: Well, it -- it --

DR. ZIEMER: When you say blank, what does that actually mean, there's nothing in the record?

MR. FITZGERALD: Yeah, it means there's nothing in the record, and there is some documentation which suggests the fact that the so-called blanks were in fact -- I don't want to say recorded --

DR. ZIEMER: So it's not a zero, there's no

number, it's just nothing?

MR. FITZGERALD: Right. It's a aberration of sorts because situations where you clearly had a unmonitored worker, and that was a little bit more understandable in the '50's when you had a situation where you had workers that were unmonitored. '64 when you had the security badge with the TLD, that becomes less understandable and that's the part where in particular this use of a so-called blank would be something we'd want to see looked at and researched to some extent and to understand the implications. What does that mean? Does that mean an unmonitored worker, does it mean the data wasn't available? And then of course that was another terminology that was used, "data not available," and in those situations sometimes the badge just wasn't returned. You know, for whatever reason, the badge wasn't returned to be read and so that was recorded. And so you have -- I mean to point this out. Given the lengthy history going back in time, and the fact that while this stuff was formative in the '50's and early '60's, you had different, you know, approaches to how things

were recorded. And again, some of these may be perhaps resolvable in terms of some research, but taken together, we think it just raises some questions about the database that we, you know, certainly would want to see those answered. We would want to understand, with each of these categories, how's that play into somebody's dose? If you had a individual who had a blank, a null finding and a data not available, how would you go about reconstructing that dose? How would you -- what kind of coworker information or model would apply in those instances? I think that would be the basis for making that judgment.

DR. ZIEMER: Robert Presley.

MR. PRESLEY: Joe, this is Bob Presley. We talking about one percent or we talking about 50 percent?

MR. FITZGERALD: Oh, no, we're talking about -- particularly in the 60's, the numbers get fairly small. And in terms of blanks you see certainly more of those in the 50's, and that's actually understandable. I guess I have less of a problem. My question is, if you see them after '64 when that was part of the security

badge -- and being at Y-12, I think Rocky was analogous -- that's hard for me to understand, because you certainly wouldn't be running around without security badge. And if you had a security badge without a TLD, is that the case or does that mean something else? So it raises a lot of questions. I'm not saying it's -- it's not a -- there's not an explanation, but right now it's unclear based on the site profile, and I think that's probably food for additional thought and research. And I think, again, we've picked that out in terms of talking to workers, looking at documentation, reviewing the GAO investigation, just seemed like there's a number of issues that pointed to questions of data reliability.

DR. ZIEMER: Board members, other questions? Michael?

MR. GIBSON: Joe, you mentioned that the assumed default particle size is one of your concerns.

MR. FITZGERALD: Yeah.

MR. GIBSON: Are there other assumed default factors that they use in the bioassay system at Rocky and other sites, such as the assumed date

of intake since the last sample, and the assumed solubility of that isotope where they sometimes use a 33 percent --

MR. FITZGERALD: Yeah, I think, you know, our concern is that there's certain simplifying assumptions made, but the problem with simplifying assumptions is that there's actual real data that's available on the five microgram -- micron AMAD. Some of the data we looked at in terms of the fires at Rocky suggest a lower, you know, AMAD in terms of the particles, and I guess our concern is that since that was a source of exposure, if you had workers that were perhaps exposed to that range, is five going to be sufficiently conservative. This is not a new issue. This is, you know, obviously one that we've debated and talked about at other sites. We raise it again because when you have actual data on particle size, our question is almost a kind of a policy question, I guess is what you're getting at, too, is how do you handle that? Do you actually apply the average, or do you in fact go beyond the default size in instances where workers were obviously exposed to maybe,

in this case, these fires where actual data shows a smaller particle size. And that's really the question in our mind.

And for these other instances, the same question. You go to a simplifying default parameter, and I guess what we talked about earlier on some of these other issues at Rocky, including the median value, that comes fraught with some issues because you're going to have worker categories and you're going to have different operations, you're going to have different periods of time in production, where that average isn't going to apply. And which makes it important in the coworker model to look at subgroups and your operational history to look at certain operations and figure okay, the default applies except for these periods of time for these operations and for these subcategories of workers. In those instances we have real data that suggest that the exposure is higher. And, you know I think that's reasonable if in fact the data is available to do that.

But we're seeing instances where the simplifying assumptions, although well thought

out and understood as something that's, given the amount of records you're looking at, certainly that's an efficiency. We're concerned that these sites are very heterogeneous in some cases and anything that's that overly simplifying is going to miss these instances where workers are going to potentially get exposed above that average.

So I agree, I think this is a generic issue. I think in this particular case we've pointed out the median value and the particle size as sort of examples to illustrate that particular issue.

DR. ZIEMER: Roy DeHart.

DR. DEHART: You had mentioned on the internal dose problem with the TS compounds that internal organs, GI organs, et cetera, you have some concern about, and that was identified I think you said with specific incidences perhaps that would give you issues of exposure. Do you have any idea of how you would identify individuals or groups of individuals who would be exposed to a higher internal dose like that?

MR. FITZGERALD: I think our perspective was if the target organ happened to be the GI tract

and if you work backwards, if you're doing -- dealing with dose reconstruction that's maybe based on colon cancer or something of that sort, then I think it's clearly something that ought to be factored in, just because it may have contributing exposure value for that particular cancer. And so it's sort of one of these where -- and overall I think we're actually pretty close to the NIOSH position. All we're saying is that there are maybe exceptional cases, depending on the target organ and the cancer involved, where the insoluble plutonium actually may provide additional dose because of the insolubility and the fact of how it's handled.

DR. DEHART: Is it possible to identify those instances where that would have occurred, or are you just going to have to use a blanket assumption to those who have internal cancers?

MR. FITZGERALD: Well, I think you're going to have the systemic exposure. I just think that you're not going to probably apply it in terms of contributing dose unless you're, again, reconstructing dose by virtue of cancers that may have been in those target organs, the

systemic organs, the GI tract.

DR. ZIEMER: Other questions or comments, Board members?

(No responses)

Okay, thank you very much, Joe. Then let's turn to Jim Neton and Jim has some responses on some of these issues from NIOSH.

DR. WADE: While Jim is coming to the microphone maybe this would be a good time for me to sort of underscore the urgency of our deliberations on Rocky Flats. I'll repeat my comments when the full Board is seated, though. NIOSH received an SEC petition on February 15th, 2005. It was to cover all employees at all locations at Rocky Flats for the years April '52 through the date of the submission of the petition, which was February 15th, '05. NIOSH qualified that petition on the 16th of June, 2005. As Joe mentioned, we did not receive SC&A's evaluation report until December 8th of 2005. This is in no way to reflect negatively upon SC&A. They did that work timely; there were classification issues that had to be dealt with, there were reviews that had to be gone through with their report before

it could be received.
If you do the arithmetic you realize that NIOSH has 180 days to make a recommendation to the Board after it qualifies a petition. That means we were due to make a recommendation to this Board the middle of December. We were just in receipt of SC&A's comments, and therefore NIOSH sent a recommendation to the Board. That recommendation was that we resolve these issues before NIOSH would produce an addendum. We hold to that. We think that's the appropriate way to go. It is certainly NIOSH's hope to have a definitive recommendation to the Board before the Board next sits, which would be in April of 2006. In order to do that to the satisfaction of the Board, these issues need to be resolved to the degree that they can. So I only make the little recollection of dates to stress the importance of our working intellectually with these opened issues that have been raised by SC&A's review so that we can be in a position, NIOSH can be in a position to make a definitive recommendation to the Board and the Board can be in a position to vote on that recommendation

when you meet next in April.

DR. NETON: Okay, thank you Lew. Lew actually has sort of summarized a little bit about what I was going to talk about in this first slide labeled time line. Some time ago when the Board initially started to embark on reviewing site profiles, Rocky Flats was one of the original I think eight that were recommended to SC&A to review, and SC&A has been going through and producing these. I think the Rocky Flats profile review was somehow being fast-tracked, as Lew indicated, because of the SEC submission that we received in the middle of February. Because of that, we have been working very closely with SC&A to try to resolve some of these issues.

As Lew indicated that we've just received the report in the beginning of December, a several hundred page document that outlines the issues. But as has been the case with sites that have SEC active SEC petitions, we've been trying to focus the issues related to the site profile review on those issues that are relevant to the SEC petition. That is, which of these issues in SC&A's reviews are show-stoppers? What

issues would essentially prevent NIOSH from doing dose reconstructions with sufficient accuracy, as defined in our regulations? Because of that, after the initial review came out, we've been now receiving these comment resolution matrices that are sort of summaries, summary findings as Joe went over, of the issues, the major issues. That allows us to focus a little better our efforts to bring these things to resolution.

Now Joe's presentation was a little different than what I've done. I've actually put together sort of a little sketch as to our general feelings and comments on the 21 issues that you'll find in the comment resolution matrix. I think there are handouts available at the side table and I believe the Board actually has those as well, and you'll see on the right-hand side, you have what I call NIOSH's response. I'd like to caveat that to some degree, to point out that these are initial draft responses that we put together, just to put some of these issues on the table for discussion.

So with that said, I think I'd just like to go

through and briefly, where I can, offer some insight as to what NIOSH believes the relevance and significance of the comments that exist in this resolution matrix. The first one I think Joe spent some time on, which is the bioassay MDA values for plutonium and americium. There's been an issue raised that they believe the MDA's that we've cited in the site profile are not sufficiently conservative. That is, they do not incorporate all sources of uncertainty that would go into that calculation. And in fact, we do agree that the variance or the uncertainty of the MDA values needs to be examined to some degree. Right now the MDA values propagate the traditional counting uncertainty in a blank, a relevant blank, and then they fold in the median values for other factors that influence the ability to detect an intake, such as the recovery -- the chemical recovery of the process, the volume of the urine that was obtained from the individual and maybe such factors such as the self-absorption of the alpha activity on the planchet. SC&A's recommendation was that we should take the 95th

percentile of those other factors, and possibly two out of the four factors, and use them to increase the MDA to be sufficiently conservative or claimant favorable.

We disagree with that approach. We feel that that's not the best way to handle the situation. We believe that if you go back and look at ANSI 1330, there are indeed examples of how one propagates the overall uncertainty, let's call it in the 1330 standard a total propagated uncertainty. One would fold those distributions, the uncertainty added to the overall value of those distributions, into the over all value and then use the 95th percentile of that as your MDA value. We've done some analyses of this. We've looked at propagating in chemical recovery, self-absorption, those sort of parameters, and they do increase the value of the median that is presented in our site profile, but nowhere near the extent as if we were to just take the 95th percentile of the values and use them as the de facto value in the MDA calculation.

So we're looking at this. We welcome some dialogue with SC&A on this issue. We believe

that we can adjust these to some degree, but the adjustments are going to be much less significant than I believe the finding currently indicates.

There's a second part of this issue which is the reporting limits. We totally agree that when the Rocky Flats health physics folks reported a value as less than a certain value, a reporting value, then we need to use that value in our calculation because we have then no a priori knowledge of what the measured value was. There's essentially sensor data. For administrative purposes they would report the value as say less than .88 dpm. That .88 value was really based in administrative controls as opposed to some statistical calculation of the detectability of the process. And when those are used -- and I think prior to 1960 or even '62 they were exclusively using these reporting values -- we agree, we need to use those in our calculations. We would have no technical justification for doing otherwise. And I don't know that we imply that we wouldn't use them in the profile, the MDA was cited there. But

where there is a reporting value, we'll certainly use it.

The second issue, super S plutonium, again Joe Fitzgerald went over it in some detail, and I'm glad that we agree that this is not as significant an issue as previously thought. There's a couple things going on here. The first situation is that if there were much more insoluble plutonium compounds than can be modeled using the ICRP parameters, then in fact the dose to the lung would go up substantially. The reality is, if one looks at the dose reconstructions we're doing for the Rocky Flats site, almost any detectable lung value or even any detectable lung dose based on missed dose, even for class S, type S material, is over the 50 percent compensability mark. The doses are just very large based on the current ICRP models. By us not defaulting to something even more soluble would merely increase the dose and increase the value over 50 percent. So it in practice makes very little difference in those situations.

Now when one looks at systemic organs, that is organs where the material has left the lung, we

would assume that the material, if it were insoluble -- the material that is in the systemic compartment would be overestimated using type S. In fact, we're assuming more is coming out of the lung than thought. So in that case, we would tend to overestimate the systemic organs using the current ICRP models. The one area that Joe correctly pointed out would be in the case of the GI tract where, if you have an underestimate of the lung dose -- in other words you're measuring the urine and you think there's less in the lungs than there really is there, then indeed over a large period of time you would ultimately swallow the deposition in the lung, it would be cleared through the GI tract, and the GI tract dose could be substantially larger in that situation. We're addressing that to accommodate the situation. We've actually issued a contract with the Transuranic Registry. They're going back and looking at autopsy cases, whole body donor autopsy cases that they've analyzed for Rocky Flats intakes. We also have some data from the folks at Rocky Flats who have looked at some former workers to

try to develop a model for super S, as it's known, or very insoluble type S material and to accommodate the extra dose that would be to the -- would result to the GI tract as a result of the insoluble material. But it's really in that narrow instance where the GI tract type cancer is present that we would have to concern ourselves.

So again, we agree with SC&A that this is an issue. But by and large it's not a significant issue for the vast majority of our cases.

Okay, the default particle size. We believe the profile does recognize that there were plutonium fires at Rocky Flats, and in fact they are categorized in the site profile. And our guidance to dose reconstructors is that when there is evidence that a worker was involved in a plutonium that may have been involved with a fire, a .3 micron particle size would be the recommended median value of the distribution. So we believe we're accommodating it.

The second part of the issue, though, is when we're dealing with bioassay data, the particle size largely does not -- the particle size

distribution that is inhaled does not largely affect the dose, because what we're doing is taking what's in the system. When you're measuring something in the urine, you're taking systemic -- systemic activity, and then that is -- the amount that's directly in the system is related to how much is in the systemic organs. So in this case it's sort of a self-compensating factor where the particle size really makes very little difference in the overall internal dose for systemic organs. But again, we certainly would be willing to sit down and discuss this with SC&A. We've had some early conference calls that Brant Ulsh of our staff has been chairing with SC&A on some of these early issues, but we have not had a chance, since this report has come out, to discuss these one on one.

The fourth issue here, the uncertainty of the plutonium lung counting calibration, this is related to the use of americium 241 as a tracer for plutonium intakes. It's a fairly widespread common practice in the industry that one ratios the amount -- americium 241 is much more easily detected in the lung, so one uses

the americium and then infers how much plutonium is there. The site profile itself is fairly conservative in the sense that it recommends default amounts of americium to plutonium ratios, certain parts per billion ratios, when the date of intake is known. But in fact if nothing is known about the date of intake and the age of the plutonium, there are some very conservative defaults that would tend to overestimate the amount of plutonium in the lung. So I -- we think that this is covered fairly well in the site profile.

This full equilibrium assumption for depleted uranium refers to, again, a sort of a -- I wouldn't say a trick, but a practice in whole body counting where, you know, one -- one cannot measure uranium 238 in the lungs directly. There are insufficient photons. So one normally result -- has to resort to using thorium 234 as an indicator of the uranium activity. Thorium 234 has a half life of about 20-something days, 24 days; it grows in very quickly from the uranium parent. So anything over 80, 90 days old is at a substantial degree of equilibrium.

There were some practices at Rocky Flats where they attempted to separate out the thorium 234, which would result in disequilibrium. But we believe in general the assumption of this equilibrium is valid and reasonable, unless we know that we're dealing with specific cases where they have altered the equilibrium. And even then, if the intake is over 80, 90 days old, we believe that the assumption of full equilibrium is reasonably valid.

The interpretation of the NTA film, the nuclear track type A film, there are some issues and number seven is a similar issue with the neutron doses. We believe that we've had a claimant-favorable bias correction factor for these neutrons, and in fact we believe we've corrected for low energy under-monitoring. However, there is this new neutron study that has been done at the Rocky Flats sites to reassess the neutron doses to workers in the early days. That study has been available to us fairly recently. We've looked at that. We are now using those new data to do dose reconstructions for individuals who have data that were re-evaluated under the conditions of

those studies. But we are also going to take the new nuclear neutron data and incorporate it into the site profile to re-do the bias correction factors. So that is something that we will be doing.

Okay. All right, some of these later ones go a little more quickly. They're not quite as significant. As Joe pointed out, they're more in the lines of -- you know, we need to address these but they're not, in our position or mind, show stoppers.

This exposure geometry, angle of dependence, this is something that's been raised in other site profile reviews. In fact, you know, we have -- in our profile and in the implementation guide -- had some discussions about how to deal with correction of badges on the chest to certain exposure geometries such as rotational and isotropic and PA and those sort of things. We have recently adopted the position that these will all be modeled using the AP geometry, the anterior/posterior geometry. It's the most claimant-favorable thing to do, and unless we can clearly indicate that the exposure situation was otherwise,

we'll do that. We've adopted that by and large in our dose reconstruction program and I think -- I think SC&A would agree that if we adopt this approach, this issue becomes not significant.

There are some other factors that were pointed out related to maybe some environmental conditions and those sort of things, and we do need to address those, the uncertainty associated with those conditions. And we recognize we need to explain those a little better.

This missed dose issue, unfortunately the response that you see in here was I believe cut and pasted from something wrong. It's addressing an internal dosimetry issue. Number nine is really addressing an external dose. So that, I think, falls into the category that Joe was speaking about that was related to these other factors like wearing badges and environmental levels of exposure that weren't subtracted properly from the badge, and those sort of things. So I guess I could say right now I'm just not prepared to address that because I've got the wrong response here.

Number ten, recycled uranium, we agree that we need to increase the language in there a little bit and explain some -- in somewhat more detail how we're going to deal with the recycled uranium issue, although we need to be careful when we're talking about recycled uranium. There is recycled uranium that is recycled that had already been through a reactor that has trace contaminants of transuranic materials. There's also uranium that is just in general recycled, meaning you've got scraps and stuff that has not been through a reactor, is going to be re-melted and reprocessed. I think one of the comments that SC&A made related to recycled uranium was talking about that type of material. We don't believe there's any dosimetric issues with that, so we just need to be careful when we talk about recycle, we mean transuranically contaminated recycled uranium. But we will -- we will revisit the site profile and put some additional language in there to help explain what we're talking about.

Okay, unmonitored internal dose. This is -- let me just look at my notes here. This is related to when you have no monitoring data at

all. And NIOSH, as we've heard in the past, has been developing coworker models. We'll take monitoring data from workers who were badged, who we could hopefully demonstrate were more heavily exposed than the unmonitored workers, and develop some lognormal distributions and apply those. That's not in this profile. I mean, just like in the Y-12 site profile you didn't see that. We believe that that should be covered in another document, and it will be. The site profile itself, as we talked in the past, is not an all-encompassing document that covers every single issue that could possibly be there. This is generic guidance to dose reconstructors. But we will deal with the unmonitored dose in a separate document. Okay, elevated ambient external radiation. This again is a -- one of the issues that -- I think it was on Joe's last slide, which is the other issues that we need to visit but are not show stoppers. There were some issues that we are aware of at Rocky Flats where badges were stored in higher elevated areas near where workers were exposed, so we were -- we might be

inappropriately subtracting badge rack background. In fact, you know, the badges were stored in the areas where the workers were being exposed. If one subtracts that, then you have a low est-- a low -- biased estimate of the dose on the low side. We looked at that in some detail when the profile was being put together. I think we just need to explain a little better, you know, what we looked at and what our position is in that area.

These next few issues, partial body exposures, has to do I believe with glove box workers and that sort of thing, and we're going to have to do a little better job explaining what we're doing in the site profile in that area.

This occupational external -- occupational X-ray dose, I think this comment "assuming full equilibrium from lung counts is reasonable", is not the appropriate comment. I'll -- I'll take blame for that. But what we really meant to say here was that we don't believe that occupational X-ray dose as a result of an injury is covered in this program. We do include all X-ray doses related to being a condition of employment, such as if one wanted

to be -- had to be an asbestos worker at Oak Ridge in some years, you needed to have an annual chest X-ray to be an asbestos worker, or early years at Lawrence Liver-- or Los Alamos one needed to have routine chest X-rays to be a uranium worker. Those we believe are relevant and should be covered as part of this program. But when you break your leg or have a back injury and go, we view that as sort of a normal occupational X-ray that is there that has medical benefit, and therefore we are not including these in our -- under the regulation as covered exposure.

Fifteen, ingestion dose, we acknowledge that we need to do a little better job addressing that. However, I would point out that when one deals from bioassay measurements, ingestion dose is covered and that one just needs to figure out whether ingestion or inhalation provides the higher dose to the worker.

Again, I'll just whip through these. Air monitoring dose, that has to do with environmental data. Again, we're committed to explaining that in some more detail in the site profile.

Soil resuspension, similar issue, we do believe we've included resuspension, but again, we will increase the level of detail in the profile, as well as number 18, hands and wrist doses. That will be addressed in the next issue. And 19 as well, industrial X-ray and neutron sources. Although I will say that we're hard pressed to find really any additional sources of neutron exposures outside of the plutonium worker areas. There may have been some neutron generators, whether they're californium sources or what not. But unless we have, you know, significant evidence of very high enriched uranium with a low Z material or something, we're having a little trouble coming up with other sources of neutrons. But we'd -- we certainly would like to talk to SC&A about that and see what their -- where -- their thoughts on where these other other sources could have come from.

And 21 and 22, again, post-production operations -- there's some concern that we didn't cover in the site profile, for instance, external exposure during the D&D phase, the decontamination and decommissioning phase of

the operation. And we are committed to going back and making that clearer and beefing it up a little bit. And the same as 20 -- in comment 21, with the phases of operation. That's a very -- like 10,000 foot level summary of where we are. We have not had a long time to review these, and you know, we welcome the opportunity to sit down with SC&A and to try to work these out and figure out which ones are extremely relevant to the SEC petition and bring these to closure as soon as possible.

DR. ZIEMER: Thank you, Jim. Let me begin with this question. Again, to try to understand this issue on item one, which has to do with the MDA values and what are selected. If I'm understanding what the difference in the two views, one is that you -- I believe SC&A is suggesting that you -- you'll have a distribution. You take the 95th percentile and then that becomes part of a new distribution that eventually there'll be another 95th percentile? Is that what --

DR. NETON: Well --

DR. ZIEMER: -- is happening here?

MR. FITZGERALD: I guess one concern I have is

that I'm not sure where the 95th percentile distribution we -- I think that two out of four parameters was the suggestion -- you know, we're saying one possible way to go is two out of four parameters, take the extreme values of those two --

DR. NETON: Right

MR. FITZGERALD: -- as a bounding mechanism, no -- no distribution.

DR. ZIEMER: Oh, no distribution.

DR. NETON: Well, what -- we would not use -- would not appropriate the distribution of those values in the overall uncertainty, which is a traditional MDA calculation. You take an uncertainly distribution and pick the 95th. What SC&A is asserting is that our distribution, the bell curve, is slightly narrower than it should be because we haven't incorporated the uncertainty in chemical recovery, self-absorption. So indeed, that bell curve will widen. But as Joe just pointed out, they are suggesting we stick with the bell curve which is the counting error, and then use the 95th percentile of the recovery for every single sample. And then that 95th--

DR. ZIEMER: Discrete values, though.

DR. NETON: Yeah, discrete values. So instead of incorporating the uncertainty, the total property of uncertainty, we would just take the highest 95th percentile for each of those parameters -- and that has a dramatic effect on the MDA's. It raises them by a factor of two, three or more, and we don't believe that that's reasonable, given that we're already incorporating these MDA's as missed dose calculations and assigning workers doses that they possibly didn't even receive. So we have to careful about how far we -- we sort of take this calculation. And again, to their -- SC&A did not -- it was a suggestion. They didn't --

DR. ZIEMER: Yeah.

DR. NETON: -- they didn't say this was the only way one could do...

DR. ZIEMER: Gen Roessler.

DR. ROESSLER: On your point number two where you where you talked about the super S plutonium in the dose to the GI tract and going to the Transuranic Registry to get information, I have two questions on that. Will you get that in time, and the second one, do they have

sufficient data, however you define sufficient, to get that information?

DR. NETON: Yeah. Yeah, the cases have already been analyzed and we're getting data as we speak. There have been four or five other cases that Rocky Flats has reviewed, and we've already looked that. We've -- we're trying to develop a model that incorporates this, and there is clear evidence that in some cases the plutonium just re-sits in the lung. I mean it just does not leave the lung, and you know, we need to factor that in. It's a little difficult, though, as you suggest, to -- you know how many data points do you need to really get a handle on a new model? But we believe that we'll have this resolved before -- before we -- before the Rocky Flats SEC petition evaluation.

DR. ZIEMER: Michael?

MR. GIBSON: Jim, on number three you mention that particle size is not significant factor when you have enough bio-- when you have bioassay results.

DR. NETON: Right.

MR. GIBSON: Are you talking about -- by

bioassay results, are you talking about the amount of activity seen in the bioassay and then making your own calculation, or are you talking about the assigned dose from Rocky Flats from that sample?

DR. NETON: No, we -- we'd never use any assigned dose from any DOE sites from a sample. We always independently calculate our own doses to the organs, and so this would be our interpretation of the dose based on the measured value in the urine or even the MDA. Even if there's no activity measured in the urine that's above the detection limit, we will assume a certain value would have been there. But, yeah, it's our own calculation.

DR. ZIEMER: Other comments or questions?

DR. WADE: I have a question -- a question just generally. Jim, just how do you see this unfolding -- and Joe as well -- I mean just since the Board will -- will deliberate, you know, tomorrow as to steps to take. But while you're up here and this is fresh in our mind, how do you see this unfolding?

DR. NETON: Well, I don't want to speak for the Board, but if the past provides any insight, I

would suspect that the Board would put together a working group that would work to help NIOSH and SC&A come to resolution on these comments. We would hold several working group discussions as well as some technical interchanges between SC&A and us over the telephone with published minutes and, you know, make this as transparent as possible, inviting relevant stakeholders to listen in as we have in the past.

DR. ZIEMER: Joe, you want --

MR. FITZGERALD: I'd like to add --

DR. ZIEMER: -- to add to that?

MR. FITZGERALD: -- I think the Y-- again, the Y-12 process has worked very well in terms of converging on the most important issues, as well as narrowing differences. I would say, you know, the same process would be effective.

DR. ZIEMER: A number of these it appears that you're fairly close. There's others where NIOSH has agreed to do some clarifications and updates --

DR. NETON: Right.

DR. ZIEMER: -- and perhaps items like the first one --

DR. NETON: Yeah.

DR. ZIEMER: -- as you get together at the table, we can come to some sort of closure.

DR. NETON: Yeah, I think we can resolve that number one fairly quickly.

MR. FITZGERALD: Yeah, I must say, this -- this is not the only time that we've started --

DR. ZIEMER: Right.

MR. FITZGERALD: -- exchanging issues and clearly converged on a couple of these just in the process of putting the report together (unintelligible) --

DR. ZIEMER: Yeah.

DR. NETON: Yeah. I will say for clarity, SC&A did make us aware of this number one issue well before their report was published --

DR. ZIEMER: Sure.

DR. NETON: -- so we had some knowledge of this prior to this meeting.

DR. WADE: Sometimes it's appropriate that we wait for one or the other parties to do some work to get together. I'm sensing maybe you're ready to get together very soon.

DR. NETON: I think so.

DR. ZIEMER: Okay.

DR. WADE: Joe, is that correct?

MR. FITZGERALD: Yeah, I think that we pointed out a number of things that -- frankly, even this was helpful just to bring us up to date on what NIOSH has done as far as looking at some of the issues, so I think the step would be maybe to clear off on some of the easily cleared-off items and then start focusing on ones that the Board would need to have better information on.

DR. ZIEMER: Okay.

MR. FITZGERALD: Clearly SEC's significant issues, perhaps.

DR. ZIEMER: Okay.

DR. WADE: Don't read my questions as sort of meddling. I just have a sense that this is an issue that we want to work with some dispatch, so thank you.

DR. ZIEMER: Other comments, questions, Board members? We don't necessarily need to take any actions. We will report to the full Board tomorrow what was -- what was covered. The sort of consensus might be that what we just heard described would indeed need to occur and that, without objection, I think we would recommend to the full Board that this process

that had been used in other cases be carried forward in this case to try to reach resolution on many of these issues. Is that agreeable? Yes, Henry?

DR. ANDERSON: Yeah, I just wanted to ask the two -- which of these issues do you see as being critical to the petition sort of activity? 'Cause I think those are ones where we really need to resolve first if -- I mean the others -- a lot of these are -- they'll be taken into account in the next revisions, well, we really can't determine whether the revisions are in fact addressing -- how they've addressed the issue. But certainly that -- a lot of those seem to be and are useful issues to address, but not necessarily SEC petition-related. So which of these are the ones that we need to focus on the most, I guess is the question.

DR. ZIEMER: Joe, can you give us a partial answer from SC&A's perspective? I think you somewhat have them ordered by priorities, so --

MR. FITZGERALD: Yeah, I -- I think (unintelligible) --

DR. ZIEMER: -- is it the first seven or

something like that?

MR. FITZGERALD: He's waving his hand to me. Yeah, we -- I wanted to order that that way without getting into fingering anything as SEC or not SEC. I think that's obviously your province. What we wanted to do, though, is illustrate the issues or findings which we felt were important or relevant to that process, and then issues that were important to the site profile, as you point out. And I think that's the distinction we're making -- the same thing we're doing with Y-12, as you will hear later.

DR. ZIEMER: And if at the next meeting we learn -- that is the next full meeting of the Board -- we learn that there are unresolved issues, the Board may have to make a specific decision on and do the resolution. Roy DeHart.

DR. DEHART: As far as procedure is concerned, is it possible that the site profile findings -- where we're standing now, what looks like perhaps a resolution coming along -- and the SEC petition can run in parallel? The Board's taken a very hard position that they want the site profile completed before we complete an SEC because --

DR. ZIEMER: In essence, the -- NIOSH has taken an action on the site profile. The action was that this -- essentially this process be carried out prior to a final determination. But Lew, do you have a partial answer to that as well?

DR. WADE: Yeah, I think, Dr. DeHart, it's really a matter of degree. I mean we lived through the experience with Mallinckrodt where we had an SEC petition in front of us and a moving target relative to agreement on a site profile, and I don't think we want to experience that again. I do think that there are a number of issues that I see here that can and should be resolved before we would expect the Board to be in a position to vote on an SEC petition. I think there are others that really can wait, and I think -- you know, Henry's question was obviously the correct question. You know, how do we bin these, and I think we're starting to understand that. So yes, I think they can run in parallel. But when we come to the Board and ask for a decision, I think it's important that the Board would have in its possession the information it would need

to act on that decision reasonably.

DR. NETON: I think Lew's summarized it well. I would just like to add that as of late we've been requested by the Board to also provide example dose reconstructions, so those in themselves go a long way toward demonstrating how we would actually do it. Whether there is a complete, signed-off revision to all issues in the site profile or not, one could get a good sense from that dose reconstruction example.

DR. WADE: John Mauro has a question. I should point out as John walks to the microphone, John has been very helpful in trying to work through this process and understand the trade-offs involved. So John, what do you have to tell us?

DR. MAURO: I'd like to sort of stick my neck out a little bit. And I'm John Mauro. I head up the crew out at SC&A. And listening to this discussion to move the flags forward a little bit, I see three areas that perhaps -- and I'm really throwing this out as a -- almost like a -- am I looking at correctly, 'cause I'm looking at it just as everyone else is looking

at it. It seems to me that if you're going to try -- out of the long list of 21 items, three of them, in my mind, merge as possibly being the ones that could be -- fall into the category that you would say SEC. Okay, you know.

And the first one had to do with data reliability. You know, when all is said and done, all these approaches that we're using to reconstruct coworker data, et cetera, we need to put the data reliability questions to bed so that we could say we're standing on a sound rock, first and foremost. In fact, I would say just about across the board data reliability is the heart and soul of dose reconstruction.

The other area that I feel puts us in a position that would challenge our ability to do dose reconstruction, and it turns out to be a small segment, but it's -- in other words we're talking about individuals with GI tract cancer, can we reconstruct their dose in light of the fact that you might have these high-fired plutonium where you have to use Transuranic Registry data to see if in fact you have a mechanism to reconstruct the dose to

individuals who may have come down with a cancer of the GI tract. We need to be able to say yes, we have a way to at least put an upper bound -- a reasonable, plausible upper bound -- on that dose. Sounds like right now we're not there. So I put that in the category that that needs to be resolved. And believe me, I'm putting this on the table more to advance the dialogue so at least I'll have -- I could give you my perspective.

And the final one is that -- the business of the chest count being the way in which you get a handle on plutonium. That is, when you're taking your whole body or your chest count, you're looking for the americium, and from -- based on the americium you could default to say okay, we see how much americium there is in the chest, therefore we can predict what is possibly the lung burden of plutonium. From speaking to our folks that have been looking at this issue, the degree to which that could be done reliably and in a claimant-favorable way in situations where you have relatively small amounts of americium -- and as I understand it there are circumstances where if you have

freshly processed separated plutonium, you may not very well have very much americium present -- leaves you in a situation where, okay, if we have a situation where that exists, you're in a tough spot. How are you going to get a handle on the plutonium in the lung if you can't really trust the ratio of plutonium to americium? If that circumstance could exist, we have ourselves a situation where how are we going to do that dose calculation?

So in the interest of furthering the dialogue, at least from my perspective, I see those three out of the 21 as the areas where I'd sure like to zero in and say let's see if we can put this one -- these to bed. I hope that helps.

DR. ZIEMER: Yeah. Thank you.

DR. WADE: Just one more little observation about time. Tentatively, when last we met, we scheduled a possibility of a call of the Board on March 14th, and then we have scheduled a full Board meeting the end of April. You know, we now have the positions clearly identified on Rocky Flats, the need for the parties to get together and start to, through working group, work issues. We could look at that call on

March 14th as an opportunity for the Board to review this information one more time. Subsequent to that I would see NIOSH issuing an evaluation report, and then a full Board deliberation. So I think we have -- we have time to do this right, but I think it's important that we reflect on all of those questions.

TASK III REVIEW – STATUS/DISCUSSION
MR. MARK GRIFFON, ABRWH
DR. JOHN MAURO, SC&A
MR. STUART HINNEFELD, NIOSH

DR. ZIEMER: Thank you. We're going to proceed now. Another item on our agenda -- again, we have altered things a bit to accommodate the fact that Mark Griffon, who has the lead on the Y-12 discussion, was snowed out and has not yet arrived. But we will move to the Task III review, which is the last item on the agenda sequentially, as it was distributed, Task III review status. In this case John Mauro from SC&A and Stu Hinnefeld from NIOSH can take us through the discussion there.

Now let me identify first the documents that you should have.

DR. WADE: Under the tab.

DR. ZIEMER: There is a tab, Task III procedure

findings matrix. Remember, Task III was the task of reviewing NIOSH's procedures. That is, the review conducted by our contractor of NIOSH, and actually of ORAU, procedures. And we have looked at the findings matrix in the past. We've looked at the initial findings, we've looked at the NIOSH response. And the Board actually took some actions I think before --

DR. WADE: Right, I think the Board has acted fairly completely on the external dose portion of this.

DR. ZIEMER: Right.

DR. WADE: The internal dose is still a work in progress.

DR. ZIEMER: And what you have -- in your folder you have the Board actions that were taken on the external portion. And then if you get to the internal dose procedures, you find there are no Board actions listed because we took none at that point. So, okay, Stu.

MR. HINNEFELD: Well, this -- I'm --

DR. ZIEMER: Stu Hinnefeld from NIOSH.

MR. HINNEFELD: -- Stu Hinnefeld from NIOSH.

DR. ZIEMER: Is that on?

MR. HINNEFELD: I'm okay. Just to refresh everybody's memory, we did meet -- we've been following the six-step convergence process on the procedure review findings just as we have on site profile reviews. And with the procedure review findings, we did follow the converging conversation step -- on the external dosimetry procedures only -- at a working group meeting in Cincinnati some months ago, and a series of recommendations to NIOSH were established at that. And we're proceeding to implement those recommendations, and here in a minute I'll give you a real quick status on where we are on the implementation of those actions.

With respect to the external -- or the internal dosimetry procedures and the claimant interview procedures, that -- there's been no converging conversation yet about -- of those findings and our initial response. And so following the pattern that would have -- that's been established so far, the next action would have -- would be a working group meeting to discuss -- where we would discuss with SC&A and the working group would help us converge on a

common understanding of the depth of the findings for the internal dosimetry procedures and claimant interview procedures. So history indicates that when we schedule workgroup meetings with site profile reviews on the table, they pretty much subsume the entire workgroup meeting, and so procedure issues don't necessarily get there. It may be worthwhile to have a meeting for this topic or for this topic and dose reconstruction report review type topic, as opposed to adding it to the site profile reviews, because the site profiles really do seem to overwhelm the day on those meetings.

So that's where we are today. We have -- NIOSH now has some -- our initial response to the findings that are on this matrix that is distributed today on the internal dosimetry and the claimant interview procedures. We can provide that electronically to SC&A and the working group members for convenience for working, but I think the next topic -- the next subject would be to have that converging meeting to discuss the internal dosimetry and claimant interview procedures.

Now with respect to status on the recommendations from the external procedures, the first -- external dosimetry procedures, the first several items in the matrix -- very many of these comments refer to sections of our implementation guide, IG-001, which is the external dosimetry implementation guide. That revision to incorporate these changes is drafted. We want to make sure -- the reason it's not out yet is we're try -- we want to make sure we get consensus among ourselves about the approach that's being taken on the dose conversion factor changes. There are certain things we'll have to change with respect to the dose convers-- organ dose conversion factors that are published in that document. And so we're trying to make sure that we have -- you know we've -- among ourselves agree that we've done the science correctly to do those, to get those changes, and then that will proceed forward.

All the rest of the revisions are ready to plug in and we were just going to do the one revision. So we were getting the DCF's finalized. So that's our status on -- that

covers all the recommendations through -- of -- that reflect IG-001.

The next document on here is then of course Procedure 6, which is our contractor's Procedure 6, which are the same findings and the same changes then will be incorporated into that that are incorporated into IG-1.

Following Procedure 6 I believe is our Procedure number three which was kind of a general description of how dose reconstructions are done. It was written very early on when there was a general -- when it was like our first procedure of how to do dose reconstructions. In the meantime our contractor, ORAU, has written very many procedures and technical documents about how to be -- how to do dose reconstructions and so this guidance has been essentially made obsolete by the later instructions, and so we've canceled Procedure 3. That one has been canceled. That was the recommended action; that's been done.

The next two documents are Technical Information Bulletins number eight and number ten. These findings relate to some confusing

language throughout. We agreed with that. Our contractor is revising those Technical Information Bulletins to more clearly reflect what's intended to be done when people are following them, and we expect to see those revisions next month from our contractor. With the OTIB-7 having to do with environmental occupational exposure, that one is hardly used at all anymore. I believe that one may actually have been canceled. I apologize, I'm not completely up to date on OTIB-7, but I can probably find out before the end of the meeting where we are on that. It's barely used at all since we now have site-specific information about environmental exposure. This was a complex-wide estimating approach that was used before very many site profiles were done. The next two are OTIB-6, okay. OTIB-6 is again undergoing revision by our contractor but I don't have an expected date yet on when we're going to receive that. Has it been revised already? Okay, Hans is more up to date than I am. OTIB-6 has been revised to include these recommendations. The two OCAS TIBs, number six and seven, reflect -- they provided specific

guidance to how to deal with certain issues that came up at the Savannah River Site that the site profile as published originally didn't address. The recommendation is to get the site profile modified to address this so you can get rid of these so you don't have this confusion of several different documents, and they weren't terribly -- and they weren't all consistent, either. And so that again, the -- depends on the revision of the site profile by our contractor and we're st-- we are awaiting that. We have not received that yet. I don't have a scheduled delivery date for that, but I don't believe it will be too far behind the two procedures, OTIB-8 and OTIB-10.

And, let's see -- I believe that completes it, right. That completes the set of actions we were going to do from the external procedures.

DR. ZIEMER: Thank you, Stu. I think it might be helpful, and perhaps you could summarize this in writing for the Board after this meeting, just to have a list that we can lay side by side -- for example, you've told us I think that the revision on 06 is now complete.

MR. HINNEFELD: Right. OTIB-6, right.

DR. ZIEMER: Would that be helpful, Board members, I think just to have --

MR. HINNEFELD: You want like a status column? Or --

DR. ZIEMER: Yeah, something that would parallel each of the items, just --

MR. HINNEFELD: Sure.

DR. ZIEMER: -- if the revision is complete so we know that. I don't actually recall if the Board had actually decided it wanted to see these revisions. I think -- I think we just needed to know -- I don't think we --

MR. HINNEFELD: Right.

DR. ZIEMER: -- need to see them, we needed to know that they're complete. And in the future and if the Board wants revised things reviewed by the contractor, we can do that. But I think it would be helpful if we had kind of a status report that's -- and we understand the low priority ones. We weren't expecting those revisions --

MR. HINNEFELD: Right.

DR. ZIEMER: -- to occur in any --

MR. HINNEFELD: In many cases when a revision was underway anyway, for instance --

DR. ZIEMER: Right.
MR. HINNEFELD: -- if there was a medium revision, a moderate revision on the same document, we could try to incorporate the low ones if it were fairly easy to do.
DR. ZIEMER: Right. And I think it would be helpful if we had a written status report. That -- I don't know that we need that before the next meeting but it's -- it would be helpful to have that in writing, or whenever you can pull it together.
MR. HINNEFELD: I'd like to do it next month when I hope I have a little more to report, in terms of things being delivered.
DR. ZIEMER: Okay.
MR. HINNEFELD: The easy way to do this would be to add an additional column.
DR. ZIEMER: Add a column, right. Just tell us --
MR. HINNEFELD: That may put us on legal sized paper if we do that in order to still be able to read it. Is that okay?
MS. MUNN: That's okay. That's fine.
MR. HINNEFELD: I could shr-- I guess it'll shrink.

DR. ZIEMER: Well --
MR. HINNEFELD: Smaller font, sure.
DR. ZIEMER: -- however you can do it conveniently so that we can --
MR. HINNEFELD: Smaller font and magnifying glasses.
DR. ZIEMER: And then on the other ones then, what you're telling us is that the steps for reaching resolution have not yet been taken.
MR. HINNEFELD: Right, in fact, these were fairly -- I don't know that they've been provided before now actually to SC&A. I intended to, but I don't believe I did. I think I sent them the wrong copy of the matrix that didn't have these on it.
DR. ZIEMER: So SC&A has not yet seen the NIOSH response yet --
MR. HINNEFELD: I -- I don't believe so.
DR. ZIEMER: -- and had a chance to interact, so --
MR. HINNEFELD: Right.
DR. ZIEMER: -- those interactions remain to be done.
MR. HINNEFELD: Right, whenever the working group is assembled to do that, we'll -- we can

be prepared for that.

DR. ZIEMER: So basically this is a status report of where we are on --

MR. HINNEFELD: Yeah.

DR. ZIEMER: -- on this item. Board members, any questions or comments? Wanda Munn?

MS. MUNN: Yes, thank you for the suggestion with respect to the status line. My memory is that the working group was concerned about that as well --

MR. HINNEFELD: Right.

MS. MUNN: -- and was looking forward to the -- seeing complete, done --

MR. HINNEFELD: Right.

MS. MUNN: -- finished, yeah. Good.

MR. HINNEFELD: Right.

MS. MUNN: Thanks, Stu.

DR. ZIEMER: Okay, other comments on this item?

(No responses)

I notice that we had allowed an hour for that. Am I missing something here? Can you drag this out a bit, Stu?

No, I don't think we need an hour --

MR. HINNEFELD: We could ask SC&A for their comments on this, I've been doing all the

talking.

DR. ZIEMER: I don't know -- SC&A has not had a chance to respond to the new recommen-- or the NIOSH responses, but -- yes, Hans, if you would --

DR. BEHLING: Yeah, we only looked at the response this morning and of course it's -- be premature for me to make comment, but I do understand the issues that were raised. And quite frankly, I think many of the issues can be resolved relatively quickly because -- and I already spoke to Jim and Stu on this issue prior to the meeting -- many of the issues involve things that have a technical side to that, but not really a strong impact on what we hope to achieve here in terms of deciding whether or not a claim or a dose reconstruction may have a claim, will go over the 50 percent or below 50 percent, which is really the critical issue.

And many of the issues that were identified early on when we reviewed Implementation Guide Two and many of the others, TIB-2 and others, which were clearly intended only to be used in select instances where the claim up front is

known to be non- compensable. In other words, what can we do to overestimate an exposure to the point where no one would reasonably argue whether the dose that we assign is in fact an overestimate, and in the process show a POC that's less than 50 percent, and therefore, say, end of the claim.

And I think many of the issues that were identified and yet to be resolved in behalf of internal dosimetry involves the high five for Savannah River, the 12/20 radionuclides under hypothetical exposures, and while there were technical issues that were identified with regard to the blending of ICRP-30 with more recent ICRP documents, they will only add a small amount of dose for individuals who, in most instances as the TIBs actually specify up front, to be only used in non-compensable claims, so what you're really doing is refining something that in the end has a very limited impact. And so in discussing with Jim and Stu, I think we can resolve some of these issues and focus on those things that are important.

DR. ZIEMER: Okay, thank you very much for that comment. Lew?

DR. WADE: Wanda first.
DR. ZIEMER: Oh, Wanda Munn.
MS. MUNN: Again, not speaking for the entire working group, but there was a serious concern -- a primary concern with respect to a lack of clearness relative to which procedures applied in many cases. We had circumstances where one procedure would appear to be applicable, but another would not approach it in the same way or would, even though the end result may be similar, would not be the same. And there was a significant concern with respect to not having procedures in place that might confuse the dose reconstructor or cause a question to be raised with respect to which took precedence on any given site. So for that reason, certainly I as a member of that group was very eager to see these procedural issues resolved since they apply not to individual sites but generally across the complex.
DR. BEHLING: Yeah, and again, when we're --
DR. ZIEMER: Hans?
DR. BEHLING: -- talking about those particular procedures that are referred to as complex-wide, as a rule they always end up being those

procedures that are directed towards non-compensable claims.

UNIDENTIFIED: Yeah, yeah.

DR. BEHLING: And there has been a lot of misunderstandings and misinterpretation and I think Stu correctly pointed out that they're currently in the process of revising TIB-8 and ten which were mostly the ones that were misinterpreted by dose reconstructors. But what has also happened in the meantime over the last six months or so, we have seen, in reviewing the various audits that we have performed, a steady, steady almost complete conversion from the use of procedures to workbooks. And the use of workbooks now takes all that guesswork away. In fact, we were talking about the potential that someday if there is some time, Kathy could present to the Board an understanding of the workbook, which would take a lot of mysteries out of how dose reconstruction is being done. And when you look at the workbooks, many of the issues that we have found that were problematic for the dose reconstructor in his interpretation of the various procedures, have been taken away

because that option no longer exists. And so it's a self-rectifying situation where we're now dealing with dose reconstructions that make use of workbooks that take the mystery out of dose reconstruction for the people who are involved. So I think the problem has essentially been largely eliminated.

DR. ZIEMER: Okay, thank you, Hans. And Kathy Behling, did you have an additional comment on that?

MS. BEHLING: Yes, I do. In fact, I believe the reason that there was a large slot of time for the Task III, both today and I guess on Thursday, I think the intent was that we would try to go through some of these internal items and findings on the matrix. We did receive NIOSH's responses a few months ago, and I don't know if they've changed with this matrix, but we have looked at those. And so at this point, although a lot of the issues were handled by Joyce Lipsztein, both Hans and I are prepared to go through those items and I think -- I believe it was Mark's intent that we might be able to go -- to step through some of those items and get some of these issues working

towards closure. And I think Hans and I are prepared to do this if there is additional time.

And also Arjun is here and can discuss the internal -- or the interview procedures. If I might, since we do have a little bit of extra time here, also let you know that we will -- in -- currently we've been authorized, as an extension of this Task III project to, as Hans said, look at the workbooks and review the workbooks, so we have a new list of procedures that have -- that we've been authorized to look at. And we're also looking at various workbooks, both site-specific and complex-wide workbooks associated with this. In fact, I'm working right now on a complete table so that you all can see the list of all the relevant procedures that are out there regarding dose reconstructions, which ones we've reviewed, which ones we've been authorized to review, and also I'm going to tie with that which ones have a workbook, and which workbooks we're looking at so that you have a full understanding of what -- of the entire picture of the Task III.

DR. ZIEMER: Certainly it would be appropriate

to proceed through that. Kathy, do you want to lead that off or is Hans going to take the lead on that? And also, do we have a handout on this?

(Pause)

I think what we'll do -- let me just -- we'll take a break for ten minutes, comfort break, and we'll get this part prepared --

DR. WADE: If I could interject just one thing, and again, it's been alluded to by several of the speakers, you know, this Board is drawn into very time-critical issues with regard to SEC petitions and therefore site profiles, and we have a tendency to put this issue off. And I think -- I know Mark wanted to bring focus, as Kathy so eloquently did, to this. So I think it's important that when we walk away from this task, we walk away with a strategy that will allow this item to be given sufficient time. This migration to workbooks is non-trivial. I think it's a very positive development, but I think it's important for the subcommittee and then the full Board to get its mind around this and then have a plan of action that's implementable. We go to the workgroup

meetings expecting to do everything and this, and we don't do this, and I think we have to learn from that lesson.

DR. ZIEMER: Okay, we'll take a ten-minute break and then reconvene.

(Whereupon, a recess was taken from 10:48 a.m. to 11:05 a.m.)

DR. ZIEMER: Return to your seats, we're going to reconvene here. On Task III, Board members, if you'd take your -- have your matrix in hand, we're going to have an opportunity for NIOSH to indicate on the matrix those items where they in essence have agreed with the SC&A comments -- and Stu will go through those and identify those -- then we'll have an opportunity for Hans and Kathy Behling to indicate some next steps on the other items. So Stu, if you can take us through those items where it appears that NIOSH has essentially agreed or at least there's been a resolution of the issue, or at least identify those issues where we're...

(Pause)

Or at least take us through those NIOSH responses.

(Pause)

MR. HINNEFELD: Okay, is it on now?
DR. ZIEMER: Yeah.
MR. HINNEFELD: Okay. Well, I mean the ones that we agree with the comment and agree to make revision to, we've kind of identified in our comment as -- you know, as -- and I'm going to have to be kind of on the fly here if that's -- if that's the one you want to talk about. You know, we may also -- you know, since there -- in those cases where we say okay, we agree we're going to make this change, maybe we would be better to talk about ones where we don't think a change is necessary.
DR. ZIEMER: Right.
MR. HINNEFELD: Is that okay?
DR. ZIEMER: Yeah, maybe you could identify each.
MR. HINNEFELD: Okay. Okay. Well, we'll start through this and when you get tired of it just tell me to shut up and I'll sit down. This -- the internal dosimetry procedures -- the document starts with OCAS-IG-002, that's on page 12 of this matrix, and I noticed that this -- the finding numbering actually calls these IG 001-01, but that's a typo. These are all on

IG-002, so the far left column is the correct column where the document is numbered correctly.

First comment describes lack of clarity in identifying special circumstances in an example, and our response is, well, we can't write an example that includes all the special circumstances that we're going to have to face. So we thought that the examples we wrote illustrated what we intend to illustrate and we didn't expect we would have to change those. But we did say that, you know, if part of this description of the finding -- the total body of the finding also talked about uncertainty not being addressed very well, and we do agree that we need to beef up the uncertainty portion of IG-2. So we do intend to do that.

DR. BEHLING: Yeah, I think was has happened is that when we undertook the review of the various procedures, we were also as new as anybody else and we didn't realize what was to come. Obviously, no one could foresee the massive expansion of procedures that would provide more definitive information as time went by, the introduction of workbooks, so some

of our criticism was perhaps somewhat premature because we weren't really in a position to assess the future and accurately assess what additional TIBs would be developed that would fill in the blanks as we saw them. So again, some of these comments, we have to take it in context of time.

DR. ZIEMER: Okay.

MR. HINNEFELD: So, moving on down the page, we agree with the second comment that there are -- I believe that had to do with an incorre-- an out of date or an old ICRP or this most -- latest ICRP-71 not being referenced and a couple of radionuclide models on this particular table, we agreed that we needed to update that table to do that.

DR. ROESSLER: Should that be californium or calcium?

MR. HINNEFELD: I -- it's -- I believe it's both. I believe it's -- I believe it is -- I don't know, I'll have to go back and look. It may be a typo. It may be Cf, but I don't know. The next comment is about the -- doesn't mention treatment of gases and vapors, and we agree that we didn't say anything about it, but

we also feel like any internal dosimetrist who has a gas or vapor exposure would know he had to use the gas or vapor model, but we will go ahead and make that change since we're going to be revising IG-2 anyway.

The fourth comment has to do with clarity in how exactly to do it. I believe this kind of speaks to Hans's comment just a minute ago about when this review was done they didn't recogn-- you know, SC&A didn't recognize the proliferation of other technical documents that would be coming along to give more specific detail. And because this is sort of a general rules document as opposed to a specific guidance document, so we didn't really feel like there was a revision warranted from that comment.

Comment number five, again, this site -- this speaks to uncertainty approaches and so we agreed that we needed to beef up or do -- be better perform-- provide better explanation in those sections.

DR. BEHLING: And -- and as just an add-on, the uncertainty issue's oftentimes driven by other procedures where you have a very, very firm

understanding of how to deal with uncertainty, whether it's the use of a triangle distribution that makes use of DCF's, the three values, et cetera, and I think it was introduced there, but perhaps not as adamantly stated as it should be. But I think the issue is one that we would walk away from and say it's not an issue that is appropriate here for the implementation guide to be addressing.

MR. HINNEFELD: See, where -- I think we're at comment number six now, which is the second one on page 13. This is one where I guess we do have a disagreement which would probably require conversation, and it has to do with whether the mouth as the target organ is appropriately modeled by the ET-2 portion of the respiratory tract. And we've got a certain body of research that we've done that we feel like we selected appropriately when we said the mouth was not included appropriately as a target by -- or not modeled appropriately by ET-2. So this will require I think some discussion.

DR. BEHLING: And I should also state to the Board that I'm really speaking in behalf of

Joyce Lipsztein here because this is the area that she was involved in, but unfortunately she's not here today to make comment, and so there'll be some comments that I will refrain from making in her behalf without having conferred with her first. So on this one I will -- I will remain silent.

DR. ZIEMER: Yeah, I think basically we just want to identify where there's essentially resolution and where further interactions may be needed, and this is one. Okay.

MR. HINNEFELD: Yeah.

DR. ZIEMER: Go ahead.

MR. HINNEFELD: Finding number seven, we agree that the statement that was cited is incorrect and we shouldn't have said that that way, but the finding -- while it's not captured here in the finding, the description -- the full finding goes on to speak about things like investigation of a hygiene habits and things when you're dealing about ingestion, and we don't propose to do that. We don't think that information will be available in dose reconstruction and so we don't propose to say anything about that in IG-2.

Comment number eight state-- is an example, it says an in vivo measurement with no detectable thorium 232 in the lungs is a comment in our IG-2, and yes, we agree that thorium 232 isn't directly measurable in the -- by an in vivo count in the lungs. You actually look for one of the photon from the decay products. And so you have to have some knowledge of the degree of equilibrium between the decay product and the parent in order to correctly interpret the bioassay result, and we understand that. But this particular portion of the implementation guide was talking about how to resolve situations where you have multiple indications of the intake. You know, how do you resolve -- in these cases when you have a positive lung count and bioassay data, and so we felt like this was an acceptable example to use for that particular instance because if you're doing in vivo counting for thorium 232, in order to do that at all you have to have some knowledge of that equilibrium. So we figured, yeah, we understand that, but what we were trying to explain is how you deal with it when you have more than one in vivo type that's telling you

that you got an intake. That was the intent of this section, and so we don't think the section needs to be revised.

Okay, finding number nine. We don't dispute what the reviewer said, but we felt like, given the structure of the document, that it was appropriate to list things the way we listed them. For instance, the IG describes -- let me think and make sure I've got the right one here. Okay, I was thinking of something else.

DR. ZIEMER: Are you on the radon?

MR. HINNEFELD: I'm on -- I'm on -- I'm trying -- I'm trying to get my mind around number nine and what we -- what number nine was.

DR. BEHLING: Stu, if I can interrupt, I think, again, it's an academic issue because the assumption generally speaking is that if you're talking about the lungs, the lymph nodes, and certain other tissues that are metabolically or mechanically concentrating a radionuclide, the assumption is to always go to the highest dose that involves the solubility of S, or slow. In metabolic tissues you go to -- default to type M, so that the assumption is always to be claimant favorable.

Now I do have a comment on that issue which I had probably wanted to make this morning, and that is -- and it goes back to some of the audits that I'm doing. Generally speaking, the assumption is -- today is to deal with type M as a claimant favorable default value for solubility for non-metabolic organs, but that's only partially correct and conditionally correct.

And what do I mean by that? If we start out with, for instance, an air intake, if we have a person breathing in air and it has so many becquerels per cubic meter and you're talking about plutonium or uranium, then it's clearly a claimant favorable assumption to assume type M, because you will be breathing in the same amount whether you assume type M or type S. On the other hand, and this is what I've found now in doing audits, when you start out with a urine sample -- and let's assume you have a urine sample that has one dpm per 24-hour urine excretion volume -- and if you start on the assumption that because the cancer is a non-metabolic cancer and you say that it's type M because it's claimant favorable, you would be

wrong. Because for the simple reason that if you work backwards and say how much do I have to breathe in in order to get one dpm in a 24-hour urine volume, if the material is assumed type M, you will get a certain value -- let's say it's X. If you start out with the same one dpm per 24-hour urine volume but assume it's type S, slow, you will end up -- the required intake, inhalation intake, is maybe ten times higher. And then if you use that value and put it into IMBA and work forwards again for that organ dose, you end up actually with a higher dose if you assume type S as opposed to M. And that is unique only when you start out with a urine data that's defined in terms of alpha particle disintegrations or something else. Because the difference being is that when you work backwards, you start out with a much higher intake when you say how much do I have to inhale in order to see one dpm and assume that I'm dealing with a slow solubility class.

DR. ZIEMER: Okay --

DR. BEHLING: And I just wanted to quickly point that out.

DR. ZIEMER: -- it's clear to the Chairman that

we need to have the face-to-face (unintelligible) this. We have 75 more items to go here on this list and we cannot resolve them here at the table, I think.

MR. HINNEFELD: We won't belabor that any more then.

DR. ZIEMER: Yeah.

MR. GRIFFON: Actually, I think Hans was going into a different issue, really it's sort of a separate issue. But on this issue I think really -- I think what you're saying is that the IG wouldn't address that kind of specificity.

MR. HINNEFELD: Right.

MR. GRIFFON: Is that kind of what --

MR. HINNEFELD: Yeah, that's pretty much what we're saying on this comment.

DR. ZIEMER: But nonetheless, I want to stop here for a moment and -- because we have -- we have the Y-12 site profile that needs discussion here this morning. We also have the dose reconstruction matrix that needs some discussion, and I want the Board to decide on how it -- or the subcommittee to decide on how it would like to proceed on this. Clearly

there are a number of items where NIOSH has already indicated that they in essence agree with the finding. There are a number of items apparently where there's still some disagreement and some face-to-face needs to occur.

So -- and Mark, your working group dealt with this. Mark Griffon now has joined us. We're glad you made it out of the snows or whatever else was occurring in Boston.

But Mark, is this something, just to expedite things, that we need to have the matrix sort of filled in next -- the next step by the workgroup before we bring it to this level? Or what needs to occur?

DR. WADE: Just to look at assets -- consider our assets, we have an hour on the agenda for the full Board for Task III. That hour is available to us to do what might be appropriate, so --

DR. ZIEMER: On the full Board meeting.

DR. WADE: On the full Board meeting. So there is time. I think how we spend that time, it's -- it's worthwhile talking about now.

MR. GRIFFON: Yeah, I don't know if -- time-

wise if there's any time between now and then for the workgroup to sit down with Stu and Hans and just go through this matrix and try to fill in some of the blanks and then, you know, at the full Board meeting maybe we could highlight which ones still need resolution, as opposed to doing it here where it's going to take longer. Because I think a lot of the IG ones -- I mean we can skip by a lot of those first ones and get to the heart of the matter. But doing it in real time here might be difficult. So it might be possible to meet as a workgroup after the meeting tonight. I don't know how much time we have.

MS. MUNN: Twenty-five minutes.

MR. GRIFFON: But I mean I'm -- you know, I'm certainly willing to do that. I would like to see this procedures review move along. I hate to wait 'till -- to push it off another meeting.

DR. ZIEMER: What Lew has suggested is that the -- the discussion on the dose reconstructions might be fully done -- simply not done here in subcommittee, but done in the full Board meeting -- and devote maybe one half-hour more

to this and try to finish it up. And one way to do that expeditiously would be just to identify quickly which items, if -- if NIOSH has basically agreed to the finding, just identify which those are. And where there's disagreement, identify and then -- because there clearly may need to be some additional follow-up.

MR. GRIFFON: Does that leave us time for Y-12? That's the only question I had.

DR. ZIEMER: We, we still have an hour for Y-12. The agenda calls for 45 minutes; I'd like to allow an hour if we could. We have set aside 1:00 to 2:00 also for subcommittee, so we could do Y-12 then.

DR. WADE: Right, again, looking at the assets, we've got an hour on the agenda -- the full Board agenda for dose reconstruction. We've got an hour on the full Board agenda for Task III. You know, how you would best want to use that time, you know, we have between now and lunch here, and then I think I agree with the Chairman that after lunch I think we should come back and devote ourselves to Y-12. So we have those time slots, and how best to use them

I think is something we could talk briefly about.

DR. ZIEMER: Well, I'm suggesting we have about a half-hour here we can go through and identify where we are on the matrix. There's about 80 or so items on the matrix, so we --

MR. GRIFFON: Yeah, that sounds good to me, maybe we can -- the only reluctance I have is we might miss something, but if we can go through and find areas of disagreement -- maybe with Kathy and Hans looking and we'll try to catch areas of disagreement and discuss those issues, and then --

DR. ZIEMER: Yeah.

MR. GRIFFON: -- move us along quicker, yeah.

DR. ZIEMER: And in -- in cases where basically there's an agreement, there's no point in taking a lot of time on it so...

MR. GRIFFON: Although some of those areas of agreement I still -- but we can discuss this maybe at the full Board meeting 'cause there's -- in some cases there's agreement, but the agreement was that it was captured in a change in another procedure, and I'm just wondering, you know, how we track that through.

DR. ZIEMER: Right, right. Okay. But -- Stu if you want --

MR. HINNEFELD: Okay.

DR. ZIEMER: -- another comment. Wanda.

MS. MUNN: I had just wanted to comment that prior to Mark's arrival I had previously made the comment that the working group was concerned about having put these procedures off again and again, so that if running through them right now will distill what we need to address at the full Board tomorrow, I would certainly support that.

DR. ZIEMER: That'll certainly help, but I don't want to spend 30 minutes trying to decide how to proceed, so let's -- let's --

MR. GRIFFON: I mean I think I can -- I can move to OCAS TIB-8, and then I think that one's a Joyce Lipsztein issue -- as you just mentioned, Hans, right?

DR. BEHLING: Yes.

MR. GRIFFON: So -- is there anything prior to that, though? There's pretty much agreement as far as I could see on most of the items prior to that in the matrix.

DR. BEHLING: And again here Mark, there have

been so many changes here with regard to the surrogate use of organs over time -- for instance, in the case of prostate for externals, testes for internals, bladder -- didn't used to be that way. So there have been changes in response to that issue.

MR. GRIFFON: Right, right, yeah, and they're noted, I think, right?

DR. ZIEMER: Yes.

MR. GRIFFON: Yeah.

DR. ZIEMER: Well, very quickly, where do we stand on 09?

MR. GRIFFON: Wait, which -- which one are you looking --

DR. ZIEMER: That's the one Stu was discussing when --

UNIDENTIFIED: (Off microphone) (Unintelligible) on page 13.

DR. ZIEMER: On page 13. It's actually --

MR. HINNEFELD: I guess, I -- I really --

DR. ZIEMER: It's IG-002-09.

MR. HINNEFELD: Right. Our view is it's an editorial comment with, you know, really no consequence.

DR. ZIEMER: Okay, keep going, Stu.

MR. HINNEFELD: Okay, I guess we'd put number ten in that same category, really, is that, okay, the -- that has to do with dose from radon gas as opposed to radon daughters because the radon section only address radon daughters and -- again, kind of -- it is editorial but not terribly consequential. Okay, and then that completed -- it's IG-10 and was the last one of IG-2.

The next one goes into our Procedure number three, the first one appears to be an editorial comment about some references being missing from the references section.

Comment Procedure 3-2 says that the procedure's not sufficiently descriptive in how you -- what's sufficiently good data to make adjustments from the default assumptions about particle size, solubility, intake data, et cetera, et cetera, et cetera. Our view was it wasn't intended to be -- to describe how to do that, that we -- an experienced dose reconstructor would have to do this and we didn't try to -- can't make somebody an experienced dose reconstructor by reading this procedure, essentially.

MR. GRIFFON: Was that Proc. 3, number 2?
MR. HINNEFELD: Was Proc. 3, number 2, right.
MR. GRIFFON: How 'bout the phrase in the finding, it talks about results are considered sufficient data and of good quality.
MR. HINNEFELD: Uh huh.
MR. GRIFFON: That seemed different than the selection of parameters.
MR. HINNEFELD: The text of the procedure at this point in the procedure -- the procedure has several steps where it describes how to select values for these various parameters of intake data, et cetera, et cetera, et cetera, and we didn't attempt in this procedure to say what kind of data or how much data do you need to depart from that. But there was no other place -- you know, since we're listing how to select, we wanted to put in a warning that, given the data in front of you, you may have a way to fit the data -- well, you can fit it with IMBA -- fit the data -- that other than what we're describing here. So in order to say -- you know, we chose the language we chose in order to allow an experienced dose reconstructor to make decisions based on the

data in front of him or her rather than following lock-step down these procedure steps. That was the intent of putting the statement in there. It was not intended to provide sufficient experience or knowledge to someone -- you know, that really only comes with, you know, knowing what you're doing, that -- really doing dose reconstructions for a while or being an internal dosimetrist, you know, and doing some of that for a while. So that's -- we just felt like the comment wasn't really particularly relevant to what we're trying to portray in the procedure.

DR. BEHLING: Yeah, I agree in the sense where we all are fully aware that internal dosimetry is a very, very complex subject, and to give definitive, step-by-step procedures for assessing it is essentially impossible. And you need to rely on a person's academic background, experience and just good intuition in wading through the information saying what is reasonable and what is not. And in some cases -- for instance, there is some guidance that, for instance, says that if given a choice between urine data and chest count when you're

looking at plutonium and you have to through the early periods during which chest counting was done simultaneously with urinalysis, rely on urinalysis because it's likely to be a more definitive assessment of internal body burden.

DR. ZIEMER: So SC&A is agreeing then.

DR. BEHLING: Yes.

DR. ZIEMER: Okay, thank you.

MR. GRIFFON: But I guess that jumped out at me because of the discussions we've had of late about, you know, whether we have a statistically robust sample and things like that, and this gets back to the question of are there any -- within your guidance document should there be anything that sort of says to dose reconstructors, you know, what -- what sort of things you should look for in terms of checking sufficient data and of good quality. There are sort of two things there, I guess, but if --

MR. HINNEFELD: Okay, the --

MR. GRIFFON: -- I understand your --

MR. HINNEFELD: -- the procedure wasn't written with that in mind, clearly.

DR. BEHLING: And Mark, I believe the area

where dose reconstructor needs to focus on in arriving at certain conclusions about the robustness of data would really not be in the implementation guide but more so in the TBD. That's where the heart of the data is that would say how much do we have -- or how much faith can we have in a data based on the information presented herein, and the implementation guide is really not the place for that information to exist.

DR. ZIEMER: Okay, let's proceed.

MR. GRIFFON: Next.

MR. HINNEFELD: Okay, let's see, Procedure 3 comments, number three through number six are editorial comments about particular tables that we agree with and we will include.

That takes us to TIB-8, this is the long version of the one I described earlier that will undoubtedly have to be discussed in -- in a convergence meeting. It has to do with the mouth and is it appropriately modeled by ET-2. Let's see -- okay, the next one is --

DR. ZIEMER: I'm sorry, is there a disagreement on this one, or --

DR. BEHLING: I'm going to skip down one

because this is an area that -- I'm familiar with the ICRP long model but these fine points or minutiae points are things that I'm going to defer to Joyce to--

MR. HINNEFELD: Yeah, 8-1.

DR. ZIEMER: These may be subject to further discussion.

MR. HINNEFELD: 8-1 absolutely will be the subject of discussion, there's no doubt in my mind. And probably will be somebody other than me representing the OCAS side from internal dosimetry.

Okay, OTIB 8-2, we agreed there are sort of conflicting statements here about use of highest non-metabolic in this particular circumstance, and so we think we can revise that and clarify that.

8-00 -- or 008-3 is really the same comment as one.

DR. ZIEMER: Same comment as what?

MR. HINNEFELD: 8-1.

DR. ZIEMER: Oh, Okay.

UNIDENTIFIED: (Off microphone) (Unintelligible) needs to be discussed.

MR. HINNEFELD: Right.

MS. MUNN: Which means there's more of it.

MR. HINNEFELD: Knowing us, we'll probably discuss it twice, too, since it's listed in two procedures.

Okay, Procedure number two is in the use -- how to use IMBA, which is a computer program for internal -- internal -- Integrated Module for Bioassay Analysis, that's what IMBA stands for. For the first procedure we felt like it's not really needed to point out the start calculation button after you -- you know, a novice can find it eventually, and after you use it a couple of times there's no point in having it in the procedure, so... start calculation is a button you click with your mouse to start the arithmetic.

MS. BEHLING: We agree. It's just not as user-friendly as it could be.

MR. HINNEFELD: Procedure number 2, finding two, Proc. 2-2 -- again, this -- we feel like this comment is -- more hits to the science than art of internal dosimetry and internal dosimetry interpretation, as opposed to operating the model. And we didn't feel like it was really relevant to the procedure on how

to run the model.

MS. BEHLING: Okay, I agree. Yeah, there's -- and I now know that there's specific training that they give for the IMBA so I'm in agreement.

DR. ZIEMER: You're okay?

MS. BEHLING: Yes.

MR. HINNEFELD: Yeah, I believe for 2-3 we'd put in that same category.

DR. ZIEMER: Uh huh.

MS. BEHLING: Okay, yes, we're in agreement.

MR. HINNEFELD: Okay, next we go to Technical Information Bulletin number two, TIB-2. The first is editorial about la-- or some documents not being references, and we agree that those were inadvertently omitted.

The second comment is that the instructions for handling intakes of various tritium forms are kind of cumbersome, and we agree that they're cumbersome but they do get the right answer. So we didn't necessarily propose to change that speci-- you know, that.

Okay, the next is OTIB-2 which would be prepared by our contractor, ORAU. Again -- now these are probably ones we're going to have to

discuss, I would guess. This is going to hit to the nature of the hypothetical intake. OTIB-2 is a hypothetical intake and so I'm guessing that since Joyce isn't here these will be subject for discussion at a convergence meeting.

DR. BEHLING: I just want to make a comment here. While this is a technical issue that should be perhaps remedied, the issue's also one that needs to be looked at in context of how this particular procedure's used. It is really only confined to non-compensable claims in an attempt to overestimate and basically say, even with this kind of assigned dose -- which we all essentially agree with is an overestimate -- you still do not come up to the 50 percent probability of causation. And of course these changes that Joyce had made would in effect perhaps raise the bar a little bit in terms of the assigned dose, based on her comments. But the truth is, the minute you approach or exceed 50 percent, that procedure gets canned and you go back to the nuts and bolts of dose reconstruction through more rigorous methods which usually means this 15,

16 rem that might have been jacked up to 18 or 20 rem gets reduced down to near zero when you realize in most instances the person who was assigned this dose wasn't even monitored.

MR. HINNEFELD: Okay, finding TIB 2-- OTIB-2-2, this is the first numbered one there on page 19. This one I had trouble interpreting exactly what documents it -- that wasn't -- weren't properly referred to, and so I concluded that this was sort of a summary statement -- restatement of a couple of later findings, number four and five, where it talks about a lack of clarity on some matters. And so we agreed we would clarify it, but I think these are kind of all going to wrap up into the OTIB-2 discussion to a certain extent.

And then the comment OTIB-2-3 speaks to -- it's not consistent with OTIB-1, which is the Savannah River high five, which is another hypothetical intake. So our position was they are both hypothetical ways for doing certain populations of claims -- one's for Savannah River, one's for other sites -- and so we didn't necessarily feel like there was any particular problem with having those two methods. But I

suppose that'll all be discussed on that dis-- in that meeting.

I suspect that since we're going to be talking about OTIB-2 in meeting, we might as well just deal with all of those in that meeting rather than go through the rest of the OTIB-2 comments here? So that takes us to --

DR. ZIEMER: So that takes us through page 20 then, right?

MR. HINNEFELD: Right, and on to page 21, actually.

DR. ZIEMER: 21.

MR. HINNEFELD: Okay, takes us to OTIB number five, first comment on OTIB number five is the same one we talked about earlier with the mouth being properl-- is the mouth appropriately modeled by ET-2, so that will be discussed later.

Okay, OTIB-- this -- this next one we didn't agree with the comment. Says OTIB-5 guidance is not sufficiently prescriptive, requires levels of detail that are not reasonable. OTIB-5 provides for ICD-9 codes -- by ICD-9 code what the external target organ is, what the internal target organ should be, and what

IMBA model you should run. So -- and all you need to know is the ICD-9 code in order to pick out which one you're answering, and we get the ICD-9 codes as part of the cancer diagnosis. So we didn't believe there was insufficient guidance. We believe that the guidance -- or that it's pretty clear, it's a table. We believe it's pretty clear and that the information is available to the dose reconstructor.

DR. BEHLING: I agree in the sense where the dose reconstructor is basically told what the organ of interest is and that's not his decision to make to begin with.

DR. ZIEMER: Thank you.

MR. HINNEFELD: Okay, OTIB-1 is the Savannah River high five, and I believe that will probably be discussion of -- probably have to be discussed at our later meeting. I'm kind of looking at Mark and Hans here. I believe that -- I believe Joyce was probably the author of most of the comments on TIB --

DR. BEHLING: Yes.

MR. HINNEFELD: Then so I believe they will probably have to be addressed at that time.

For expedience now, we can, you know, just put all those off and -- because they will have to be talked about later. I -- I -- rather than try to parse them out as to which ones we're going to discuss and which ones we're not.

DR. ZIEMER: All of the OTIB--

MR. HINNEFELD: OTIB-1.

MS. BEHLING: OTIB-1.

DR. ZIEMER: -- 1s on through the top of -- there's 14 comments, right?

MR. HINNEFELD: Yeah.

DR. ZIEMER: Is that correct?

MR. HINNEFELD: Right.

DR. ZIEMER: So all of the OTIB-1 comments would be discussed.

MR. HINNEFELD: Well, I think there are certain places where you could say, you're right, we should explain things more clearly, and we agree that we will explain things more clearly. But since we're going to be discussion OTIB-1 anyway, I suspect --

UNIDENTIFIED: (Off microphone) (Unintelligible) cover it all.

MR. HINNEFELD: -- why don't we just cover it all at that point.

MS. MUNN: That would be better.
MR. GRIFFON: Has that -- has any of this been discussed in the Savannah River profile review?
MR. HINNEFELD: Has that been discussed?
MR. GRIFFON: Or it sort of overlaps, right?
MR. HINNEFELD: Certainly there --
MR. GRIFFON: Yeah.
MR. HINNEFELD: -- this issue was brought up in dose reconstruction review, and the resolution was we'll address this in Savannah River site profile. Okay, we can address it through this, we can address it through that --
UNIDENTIFIED: (Off microphone) So we're overlap (unintelligible).
MR. HINNEFELD: -- we just need to address it once and -- yeah.
DR. ZIEMER: We're up to OTIB-3.
MR. HINNEFELD: Up to OTIB-3.
DR. ZIEMER: Well, all of these start with OTIB-3 has been canceled, so...
MR. HINNEFELD: Right
DR. ZIEMER: And then there's some other things referred to, so...
Is that a moot point? That's what I'm really asking -- or is there an issue on the -- where

the pertinent information is now. Hans, do you have a --

DR. BEHLING: Yeah, I was really asking Stu. I believe OTIB-3 has been replaced by 11, is that correct?

MR. HINNEFELD: Right.

DR. BEHLING: The tritium calculation?

MR. HINNEFELD: Right.

DR. BEHLING: Which means that this -- all these comments are at this point moot.

MR. GRIFFON: Except that here -- here's one of the examples I was talking about 'cause it's -- we have agreement, I guess -- sort of agreement, but it's just saying, you know, see TIB-11, which we haven't reviewed, so --

DR. BEHLING: Yeah, yeah.

MR. GRIFFON: -- I guess from a tracking standpoint, we want to make sure that the issues brought up in the three findings are appropriately addressed in TIB-11. So I think --

DR. BEHLING: Correct.

MR. GRIFFON: -- from a follow-through standpoint, I think we need to do something with that. I --

MR. HINNEFELD: We can come to the discussion meeting later on with more explanation of how either TIB-11 doesn't conclude that issue anymore or -- or maybe it still does.

MR. GRIFFON: Yeah.

MR. HINNEFELD: And -- okay. One of these comments is about organically-bound tritium, OTIB-3-3, which has come up in several places at Savannah River.

DR. ZIEMER: Let me ask this question, though. At this point how many new procedures, aside from the workbooks, are there? What I'm really getting at is do we need a -- do we need to think about reviewing another set of procedures or do we look at these items -- it's now in 011, we automatically look at it because that's where it is now, to see whether the issue has been resolved.

MR. GRIFFON: Right.

MS. BEHLING: Excuse me. We have been authorized, under the extension on Task III, to review some of the newer procedures that are out.

DR. ZIEMER: Right.

MS. BEHLING: And OTIB-11 is on that list.

DR. ZIEMER: So -- okay, so then we -- we simply carry it across --
MS. BEHLING: Yes.
DR. ZIEMER: -- and make sure we track it, then, yeah.
MS. BEHLING: Yes.
DR. ZIEMER: Okay, thank you.
MR. HINNEFELD: The comment about organically-bound tritium at Savannah River is -- as near as we can tell, organically-bound tritium is a really minor contributor in general. I mean if -- if -- to the extent it contributes at all. Yes, there are some organic compounds in the tritiated areas. Yes, they can become tritiated. But the intake seems to be overwhelmingly tritiated gas and tritiated water. So that would be our (unintelligible) --
UNIDENTIFIED: (Off microphone) Right (unintelligible) --
UNIDENTIFIED: (Off microphone) Tritiated (unintelligible) --
UNIDENTIFIED: (Off microphone) Sure (unintelligible) --
DR. BEHLING: We looked at it. We looked at it

and the small percentage of organified -- okay, increases the effective half-life from ten to 40 days, but it's an insignificant component of the overall dose.

DR. ZIEMER: Thank you. Okay, OTIB-4.

MR. HINNEFELD: Right. Well, we've revised OTIB-4 and, at least for the first two comments, we believe we have addressed at least these two. The third comment, OTIB-4-3, has to do with it not being consistent. And again, we felt like these are overestimating approaches that have identical bases for particular populations of claims and that don't necessarily need to be the same approach for all populations of claims. So that's our -- so we have -- this is not -- OTIB-4 is another hypothetical intake for atomic weapons employers. And so we feel like, based upon the information you have available for a particular population of claims, you may choose one hypothetical approach which is -- you have a sound basis in one population. You have a different basis for another population. So you can have more than one, that's our position on these. You can have more than one approach.

DR. BEHLING: I guess the comment on the issue of ingestion is something that relates back to the Bethlehem Steel. I think people who've reviewed TIB-4 have looked at it and said well, it's a fairly conservative number for both the inhalation and ingestion. But when we look at the Bethlehem Steel in comparison to what we agreed upon in terms of what might be the ingestion dose for Bethlehem Steel, the claimant-favorable assumption that this was a bounding value as defined in TIB-4 is somewhat less than optimal upper bound value.

MR. HINNEFELD: Yeah, we'll bring -- the outcome of Bethlehem Steel will be brought into TIB-4 as well.

DR. ZIEMER: Where does that leave us on this?

MR. HINNEFELD: Okay, well that would be -- I'll need to change our response then on 4-2.

DR. BEHLING: The driver for TIB-4 is really the inhalation dose.

MR. HINNEFELD: Right.

DR. BEHLING: And when you look at that number it is a very, very large dose, and then the assumptions that are made are very, very conservative, all agreed. But in comparison to

the Bethlehem Steel, the ingestion component is perhaps somewhat less than bounding and that was the comment that we've submitted for review.

DR. ZIEMER: So NIOSH is going to revise this?

MR. HINNEFELD: We're going to revise our response on OTIB-4-2 on the -- is that the ingestion one?

MR. GRIFFON: No, I don't think so.

DR. ZIEMER: No.

MR. HINNEFELD: No. One of these had to do with ingestion.

MR. GRIFFON: First one says procedure's not explicit on how to add ingestion and inhalation doses, I don't know if that's the one.

MR. HINNEFELD: Okay.

DR. ZIEMER: Well, in any event, you'll make the appropriate revision here. You need to identify where that is.

MR. HINNEFELD: Right.

MR. GRIFFON: This'll be Table 3-5 potentially could be revised, is that what you're saying? Again, based on Bethlehem Steel, or based on -- is that -- I'm confused on that.

MR. HINNEFELD: Which would -- okay, Table 3-5

is -- okay.

MR. GRIFFON: Your response says that ingestion and inhalation values are explicitly listed in Table 3-5 of the revision of TIB--

MR. HINNEFELD: Right, right. And so that Table 3-5 would be adjusted to incorporate whatever's determined out of the Bethlehem Steel discussion. Okay. And...

MR. GRIFFON: So -- so this gets back -- just to tie this back, this gets back to the Board actions under Bethlehem Steel where we ask for a broader policy on the ingestion rates so this will --

MR. HINNEFELD: Right.

MR. GRIFFON: -- encompass that.

MR. HINNEFELD: Right. Right.

DR. ZIEMER: So there's no more discussion needed between SC&A and NIOSH, it's just a matter of updating this, then?

MR. GRIFFON: Right.

MR. HINNEFELD: Right, I believe.

DR. BEHLING: I have reviewed TIB-4 and there may a couple of items here that are not even included that I discovered that there's some minor errors, but we'll talk about that later

on in private when we have reasons to at least acknowledge what findings I have when I reviewed some of the audits that made use of TIB-4 that are not acknowledged here in this matrix.

MS. BEHLING: In addition, I believe that there's been a revision to TIB-4 that we have not been asked to look at yet, although in light of the various Technical Basis Documents we have looked at it, but not officially put on our list of procedures to review -- the revision to TIB-4.

DR. MAURO: I'd like to just add, TIB-4 is becoming an extremely important guideline because it's being used as a default for all AWE facilities with uranium when you don't -- when -- it becomes one of the more fundamental procedures. It has been revised twice.

DR. ZIEMER: We're up to Rev. 3 in TIB-4?

DR. MAURO: Rev. 3 PC-1, so it actually has -- it's been revised even more recently. Now the important point is --

DR. ZIEMER: And you've reviewed --

DR. MAURO: No.

DR. ZIEMER: -- officially only the initial --

DR. MAURO: No, we --
DR. ZIEMER: None of the revisions.
DR. MAURO: The only reviews that it's received was because we had so many AWE's where it was used, we were forced to review it because that becomes a document.
DR. ZIEMER: Part of that.
MR. GRIFFON: Under -- under Task III, John, you reviewed what Rev., Rev. 1 or --
DR. MAURO: I don't believe -- I don't --
MR. GRIFFON: (Off microphone) (Unintelligible)
DR. MAURO: -- I have to say, I don't think we reviewed TIB-4. I could be corrected on that.
MR. GRIFFON: Oh, it's in the matrix.
DR. MAURO: It's on a list? Then we did. I apologize.
DR. ZIEMER: But that was the original version.
MR. GRIFFON: That was the original version, I believe, yeah.
DR. ZIEMER: And they have sort of tangentially reviewed the revisions as part of the ongoing work.
UNIDENTIFIED: Right.
DR. ZIEMER: But not officially.
UNIDENTIFIED: Right.

DR. ZIEMER: Okay.
DR. WADE: I can add TIB-4 then to the contract to see that its latest revision is reviewed.
UNIDENTIFIED: Yes.
UNIDENTIFIED: Yes.
MR. GRIFFON: I think we probably need to, to track these issues through. And it is an important procedure, obviously, yeah.
MR. HINNEFELD: Shall we just go past the TIB-4 ones here, then?
DR. ZIEMER: Yeah, so that would carry down all through the TIB-4s here on -- there's how many, 13 of those. So what will be needed then will be a review of Rev. 3 and any appropriate discussion on these items.
MR. GRIFFON: Yeah, the latest Rev., I think it's 3-PC-1, like John indicated, yeah.
DR. ZIEMER: Okay.
MR. HINNEFELD: Okay, and then the final procedures are interview procedures. And based on where we are, I believe this will have to be subject of additional discussion because we were -- had not been able to really provide a thorough response. We provided a sort of initial response. I'd like to provide a better

response by people who actually do the interviews, and I don't have that yet. So I think the final ones, the interview procedures, would have to be subject to -- discussed at the later meeting.

DR. ZIEMER: You're talking about Procedure 4 --

MR. HINNEFELD: Talking about Procedure 4 --

DR. ZIEMER: -- and 5 --

MR. HINNEFELD: -- 4, 5 and -- it's not 6, I don't think.

DR. ZIEMER: Is 17 part of that?

MR. HINNEFELD: Seventeen, right -- 4, 5 and 17. And they've actually all been combined into one procedure now, but the items -- I did go so far as to see that the issues here -- the findings here are not necessarily rectified by the new procedure that combined all those procedures into one. I mean, the issue probably carries forward, so it'll be subject for discussion although we may be talking about Procedure 90 at that point as opposed to --

MR. GRIFFON: Is Proc. 90 on the new list? I doubt it, kind of.

MR. HINNEFELD: I don't know that it's much

different than these. It's a sort of a consolidation of three procedures into one. One was like scheduling the interview, one was like conducting the interview and I don't know if it was documenting the -- it was something like that, and it was combined into one procedure describing how to do all those things. But I don't -- the findings certainly weren't alleviated by putting it in. I've looked at that.

MR. GRIFFON: I guess my concern with this one is that, you know, we've -- we've done a heck of a lot of interviews through this program, you've done a heck of a lot of interviews through this program. And you know, there's -- half of these are answered by saying that the findings reflect a difference of opinion.

MR. HINNEFELD: Right.

MR. GRIFFON: And I think there's some pretty substantial differences of opinion maybe here, I don't --

MR. HINNEFELD: Well, I threw that in there because clearly -- I mean there are -- the claimant interview is conducted in accordance with a script that approved by Office of

Management and Budget. Okay? Collect -- if you're going to collect the information from more than a handful of people, you have to get a -- your formats approved by OMB and ours is approved by OMB and so we have to follow the script. Okay. Within the context of the script you can ask additional -- solic-- you can elicit -- you can elicit more information as you go through there as you need to. The -- our view is that we have interviewers who are not necessarily health physicists. We have interviewers who have maybe experience working at a DOE site or some other -- you know, in some other way have learned some sort of knowledge about working for DOE, but they're not health physicists. And my recollection -- it's been a while. My recollection on a lot of these comments were that at a particular point in the interview the interviewer should do this or that or other things that it really would require probably more knowledge and experience to know to ask than our interviewers have. You know, that to me is a lot of it. And so that's why I wrote down there that comment. That comment is mine, it reflects a difference of

opinion on what the interview is intended for. That's my word. I put that in there kind of as this doesn't -- there's a lot of things being asked for are things that I would not expect our interviewers to do. So that's why I listed that comment.

DR. MAKHIJANI: This is Arjun Makhijani. There are actually several different categories of comments.

MR. HINNEFELD: Uh-huh.

DR. MAKHIJANI: In regard to what the interviewer should know, we actually didn't say that the interviewer should be a health physicist. The only place where that came in was in the closeout interview where NIOSH does make a provision for a health physicist to be consulted later. We felt that the health physicist should be on line or on tap, at least, during that process because right now there seem to be at least some claimants who were uncomfortable and can't get their questions answered during closeout. But the comment on the interview itself is that the interviewer should have some knowledge of the case and the site, and so there's a sequencing

problem that arises as to when the interview is done. And so many interviewers know the sites, you know, because they've done interviews at many sites and so some reorganization of who's doing the interviews and how much they know about the site might be important.

And then there was a whole other set of comments that related to survivor claimants and the disadvantage -- our procedures, SC&A procedures, approved by the Board, required us to go through and evaluate whether it was equitable to all claimants. And we did that and we felt that survivor claimants were, in some categories, at a disadvantage and obviously --

MR. HINNEFELD: I don't think --

DR. MAKHIJANI: -- this is an item for discussion between NIOSH and us.

MR. HINNEFELD: I -- sure, we can discuss it. I mean it's on for discussion.

DR. ZIEMER: Well, on all of these dealing with the interview process which -- does that begin with Procedure 4?

MR. HINNEFELD: Yes. Yes.

DR. ZIEMER: And on through 17 -- 4, 5 and 17.

Do all of these require some further discussion?

MR. HINNEFELD: Yes.

DR. MAKHIJANI: Yes, we agree that they do.

MR. GRIFFON: And I think that -- I mean from my standpoint I think we need to look for some creative maybe fixes on this. You know, when we have these further discussions maybe you'll disagree with it, but you know, I understand the restrictions from the OMB standpoint that the -- 'cause we've -- this is sort of deja vu. We've been through this before. But you know, can the -- can the process be changed so that the interviewer has other tools available during the interview that help in the site-specific sort of nature of the follow-up questions and things like that. I guess that's a -- that's come up again and again at some of the public comment sessions that we've had, so I think it's important to consider and I'm -- I'm --

DR. ZIEMER: What's considered outside the script? In other words, if you suggest the kinds of questions that an interviewer might use to elicit additional information, does that

become part of the script and need approval?

MR. GRIFFON: (Off microphone) (Unintelligible) asking, yeah.

DR. ZIEMER: Yeah, that's basically what -- I don't know if either the NIOSH people or --

MR. HINNEFELD: I don't know that I'm particularly expert in that and I don't know that I can really comment on that.

DR. ZIEMER: I think this needs further discussion with some Board input on that because we need to know what the limits are in terms of what can be changed without going back through OMB. And if -- I think if it's something the Board feels is important, then we need to suggest that -- even if it requires that, that that be done.

MR. GRIFFON: I think -- 'cause I think -- for example, some of the criticisms we've heard is this -- this list of radionuclides that -- I don't necessarily disagree with it being in there, but I think if -- if the interviewer prompts with code names, oftentimes the former workers will remember or know the code names. They may not know the radionuclide. You know Y-12 is a great example of that, there's so

many code names at the site -- although there's other classification issues surrounding some of that. But you know, there might -- it might prompt -- you might get better responses if you have sort of an index of site terminology to help the interviewer in these interviews. So I don't know if that's part -- you know, considered part of the script or not, or what the rules would be. But I think some of this --

DR. ZIEMER: Well, let's put all --

MR. GRIFFON: -- needs to be discussed.

DR. ZIEMER: -- of these in that category requiring some additional discussion so we can determine how to proceed on these.

DR. MAKHIJANI: Yeah, Dr. Ziemer, Stu and I caucused a little bit during the break and I was told that essentially we'd get somewhat more illuminating comments as to what the disagreements are or what the reviews are, because right now it's very difficult -- because SC&A doesn't know exactly what the nub of the disagreement is that it -- carry forward the dialogue, so that I guess would be the next step.

MR. HINNEFELD: Right, I think the next step is for us to provide a better response based on the interview organization, to have these comments now. They need to provide the response.

DR. ZIEMER: Okay, thank you very much. I'm going to terminate this discussion at this point. It's noon. We want to allow enough time for the discussion on Y-12 right after lunch. Lew, do you have any comments for us as we take a break?

DR. WADE: Only to say that we will revisit the issue of the Task III reviews on Thursday and then the full Board can put its mind to, you know, giving instruction as to how we'll continue on with this issue. So I think this discussion has helped sort of bound the issue, and then the Board can decide and deliberate on Thursday.

DR. ZIEMER: Right. Okay, thank you very much. Then we will recess until 1:00 o'clock. Please try to be back promptly so that we have a full hour if possible to discuss the Y-12 site profile.

(Whereupon, a recess was taken from 12:00 p.m.

to 1:10 p.m.)

Y-12 SITE PROFILE DISCUSSION
UPDATE OF MATRIX
MR. MARK GRIFFON, ABRWH
MR. JOE FITZGERALD, SC&A
DR. JIM NETON, NIOSH

DR. ZIEMER: I'd like to call the subcommittee back into session. The item that we'll address now on our agenda is the Y-12 site profile and an update of the issue matrix that's been developed -- actually by the working group, and Mark Griffon was chairing that work group and Mark -- we have in our notebooks the matrix and also -- I think that matrix is still in the same version as what you distributed to the Board by e-mail at the time of our January 9th telephone conference call. Is that correct?

MR. GRIFFON: Yeah, as far as I know, no one's edited this. Correct.

DR. ZIEMER: Okay. So if you'll take us through the matrix and give us the status of each of the items. And after the break when the full Board convenes, we have again on the agenda the Y-12 site profile, at which time we'll have a full report on issue resolution from Joe Fitzgerald of SC&A. But if you'll lead us through the matrix right now as part of the work-- or Subcommittee group.

MR. GRIFFON: Okay, yeah, and for those in the audience, I think the matrix should be available on the side table. Correct?

DR. WADE: Yes.

MR. GRIFFON: Yeah. So we're talking from this matrix that says Y-12 site profile review, matrix of priority issues potentially relevant to SEC petition review. And really we -- the last public -- the last Board conference call about two weeks ago I think we discussed this matrix in depth and what I was going to do was try to provide a status of what's happened between the last Board meeting and what's -- and where we're at today in terms of the outstanding action items.

DR. ZIEMER: Yeah, and Mark --

MR. GRIFFON: And if I could ask, you know, Jim Neton and Joe Fitzgerald -- if I miss anything certainly, you know, they'll fill in the gaps for us.

DR. ZIEMER: And by way of background, let me point out -- particularly for those members of the public who are here -- the site profile was reviewed extensively by the Board's contractor, and the original findings matrix had I think

135 issues on it. We're not focusing on all of those issues, but on those issues which pertain specifically to the petition for SEC status. And so out of those 135 there are a number that were identified as being pertinent to the SEC and those are the ones that are focused on here.

MR. GRIFFON: Right, and several -- some of those were rolled together into --

DR. ZIEMER: Yes, into--

MR. GRIFFON: -- you know, into one item so it's not like we reduced from 135 down to, you know, 20 or whatever, but some of them got rolled togeth--

DR. ZIEMER: Right but not everything in the original review is covered here.

MR. GRIFFON: That's correct.

DR. ZIEMER: -- we just want to make that clear.

MR. GRIFFON: Yeah. I guess just to step through the matrix, the first issue, internal dose issues and issue 1-A discusses the validity of the bioassay data. And the action items -- there's several action items listed, one through six in the matrix. I think -- as

an update on this, I think that NIOSH has now provided on the O Drive for access to the Board -- the O Drive is the -- a secure server, a link to a server that the Board has, and SC&A, our consultant have, so we're able to get this additional Y-12 external dosimetry data which takes us up through -- expanded the years right up to '57 I think --

UNIDENTIFIED: (Off microphone) (Unintelligible)

MR. GRIFFON: '55? '65, I'm sorry, '65 -- and also added job title information into the database. So that -- that's certainly progress and that's something that SC&A have requested to do a --to assist in their review. So we have that.

Looking down the list, I'm not sure other parts of this have been -- I might ask -- item three specifically talks about the comparison between hard copy records -- for example, log books, data cards, and electronic records, if possible, and this was sort of as a way to check the reliability of the electronic data that NIOSH is using for these coworker models. And I don't think there's any status here but I

was just -- myself, I'm curious whether there's been any investigation into whether -- I know initially it was sort of thought that these -- most of this raw data would be inaccessible or couldn't be located, and I don't know if you have any update on that item, Jim.

DR. NETON: This is Jim Neton. I don't have a lot to report other than we did have a conference call with ORAU on the 13th of January after we had this meeting on the 8th, and at that time ORAU did indicate that they may be able to access some of these laboratory analyses results and such. Bill Tankersley was going to take that action item. He was here this morning, I don't see him here right now, but -- but right now we're still hopeful we might be able to do something. I don't know how extensive it might be, but we may be able to get a little -- shed a little information from that database.

MR. GRIFFON: Okay.

DR. ZIEMER: Mark, let me interrupt you just one moment here. One thing I neglected to do when we moved to the Y-12 site profile was to ask Dr. Wade to clarify for us any conflicts of

interest on this particular site.

DR. WADE: Right, thank you, Mr. Chairman. Yes, we are discussing the Y-12 site profile. We have several Board members who are conflicted with regard to Y-12. They are Roy DeHart, Robert Presley, Paul Ziemer and Mark Griffon -- Mark only where issues related to the Atomic Trades and Labor Council are discussed. Let me remind you that with regard to site profiles, when discussing a site profile, a Board member who has a conflict may participate in the discussion at the table. They cannot make motions or vote on motions. I anticipate no motion will be made during this discussion, so all those that are conflicted can remain at the table and participate fully in the discussion at the table.

DR. ZIEMER: Thank you very much. Okay, Mark, proceed.

MR. GRIFFON: And just -- maybe I'm -- maybe I'm jumping around a little bit here. Number two, Jim, the -- also we talked about reviewing health physics reports. I think the same goes there, that you haven't yet done anything on this but you plan on...

DR. NETON: Yeah, there are actually --

MR. GRIFFON: Or it's underway.

DR. NETON: There is work in progress. You know, we're trying to get this done as quickly as possible. I will say that on the laboratory notebooks there was some belief that they may exist, but we have to be careful, you know, how much time that might be required to go to some vault or some area and decipher what's in there, so we've -- I've asked ORAU to be judicious in giving us, you know, some idea of how much time it's going to take. If this would take months and years, then maybe we don't want to go there. We believe our secondary back-up is this looking at the health physics reports and such to do what we would sort of call a sanity check on the data and the database versus the results that appear in the fairly extensive collection of health physics reports that we have.

MR. GRIFFON: Okay. And item number four -- this item is basically that NIOSH will -- and I'm sure this is work in progress, as well. NIOSH and ORAU are going to try to provide -- the database as it exists now has values of dpm

and it's not always intuitively obvious how the values in the database were taken from the raw data, the counts in the original laboratory records. We did have -- we have at least one laboratory report, but it was from 1965, that gave an equation. But there were also still some variables that were sort of undefined, so that's a work in progress as well. We want to know how they took raw data and calculated disintegrations per minute in the actual database that they're using. So we want to track that back.

Number five is, again, looking for quality control procedures that would have been in place for the bioassay program in that historical period of interest. And again, they're working on this action item.

And then number six is that apparently there was a letter or they're looking for some sort of communication between the site and DOE that DOE would accept the electronic record as the record of -- the legal record of the urinalysis data. And that's just another quality control sort of measure that they're going to look at in terms of assessing the overall reliability

of the -- so these are all -- all these action items are related to looking at the validity of the bioassay data. So that's sort of the actions that are in progress and the one has been accomplished.

Moving on to the second page -- I think it's the second -- yeah, and this -- I don't know if there's any progress on this one, Jim, 1-A-4. NIOSH had agreed that they would review these documents cited by SC&A.

DR. NETON: We're still looking at that. We have gone and obtained some additional documentation, I believe that was written by Keith Eckerman, related to this item and we're reviewing that as well. But we don't have a final position on this at this point.

MR. GRIFFON: So under review, again.

DR. NETON: Under review.

MR. GRIFFON: Sorry I keep calling you to the mike.

DR. NETON: That's all right.

MR. GRIFFON: All right.

DR. ZIEMER: Excuse me -- interrupt here. Are the documents referred to here -- have those been obtained, the Max Scott papers?

DR. NETON: Yes, we have those.

MR. GRIFFON: The next two items, no actions were necessary, primarily I think because it wasn't an issue of particular concern for the petitioning question, the SEC petition time period in question. It doesn't mean that it's not still a finding in the site profile, as Paul stated earlier, but no actions for this particular review.

Going down to 1-B, the header on that section is other radionuclides, and we have several action items here. Thorium air sampling database, I don't think we have that on the -- do we?

DR. NETON: Well, it's not on the O Drive. It is on the drive, but it's not in the directory that you're normally used to seeing it. I just need to move it.

MR. GRIFFON: Okay.

DR. NETON: We put it out there a while ago, but it for some reason is not in the right location, so I just need to physically move that myself over there.

MR. GRIFFON: Okay.

DR. NETON: I will point out, though, that is

post-1960 data, so it's not likely to be relevant for the SEC petition that we're evaluating. But the data are there and available once I get them in the right location.

MR. GRIFFON: Okay.

DR. NETON: As long as I'm up here on number two --

MR. GRIFFON: Yeah, go ahead.

DR. NETON: -- I can --

MR. GRIFFON: You can give a positive (unintelligible) --

DR. NETON: I'm happy to report that the 6,000-record CD that was being reviewed for classification purposes is now -- has now been released as of I believe yesterday. ORAU has it in their possession and is looking through it to see what, if anything, we'll be able do with this to help reconstruct doses for the other radionuclides that we don't have data for currently.

MR. GRIFFON: Okay. Then number three, I think -- let me ask -- this is that NIOSH characterizes all the operations involving other radionuclides -- Calutron, Cyclotron, and

recycled uranium processes. I guess that sort of overlaps with number five, which is SC&A to review the ratios used for the recycled uranium as presented in the site profile internal dose section. And -- and -- go ahead. SC&A has provided at least a draft response to this I think, so...

DR. NETON: Right. I'd like to just back up. Items two, three and four are all somewhat related --

MR. GRIFFON: Yes.

DR. NETON: -- in that they have to do with these other radionuclides. We have a very large amount of data available for uranium exposure, at least bioassay records and air sample data. But it was correctly identified in the SC&A review that there were other exposures to other radionuclides such as plutonium and uranium-233 and gallium-67 I believe that we may not have data for. Those items -- two, three and four -- are related to that. The 6,000-record set had bioassay data for those other radio nuclides, I think more specifically plutonium and possibly polonium. And then the 4,000 -- Department 4000 data are

related to work that was done at Y-12 on behalf of the X-10 facility. And ORAU is looking through that to see if we can glean any information relevant to bioassay for the Calutron/Cyclotron operations, and hopefully between the Department 4000 dataset and the 6,000-record set that's just been released they're going to attempt some type of a coworker matrix to help us flesh out what the exposures were for these other radionuclides. With that, I'll turn it over to Joe.

MR. FITZGERALD: Thank you, Jim. Just to clarify, I think there's almost three bins for this other radionuclides issue. And of course one is this question of the X-10 --

MR. GRIFFON: Right.

MR. FITZGERALD: -- sources. Then there's the recycled uranium, both of which I think we're now beginning to make some ground as far as actual data and analysis.

The third one, which is maybe a little more problematic, is something that we included in the site profile which deals with these other sources outside of X-10 and Y-12, and some of this is documented but perhaps a little more

speculative, which is the origins of U-233 handling, perhaps processing that might have taken place. And the issue there is whether it, you know, would have been confined to X-10 or would have been broader. The other issue is this notion of preferential melting and vaporization of radon in this case from the furnace operations. And that's something that, again, we identified as potentially a significant source term for workers that would have been in the vicinity of those operations. And again, it's not a plant-wide issue, but something we picked up enough in terms of the documentation and I think there was a number of HP analyses because this would have been a -- this was a special situation and was sort of flagged by the HPs at the time. So that would be something that, you know, certainly the third bin would be sort of these other possible sources.

MR. GRIFFON: And the time frames on these are -- overlap the SEC petition time frames?

MR. FITZGERALD: Yes, uh-huh.

MR. GRIFFON: Yeah, I think that kind of would be captured under number three, which is that

all operations are characterized.

MR. FITZGERALD: Right.

MR. GRIFFON: That's sort of why I had --

MR. FITZGERALD: Yeah.

MR. GRIFFON: -- included it, but good -- good to clarify that 'cause we -- we -- I think we could easily forget that one. Okay. And I just wanted to point out on number five, the recycled uranium, there is a section in the site profile -- NIOSH's site profile that discusses this, and SC&A did do a preliminary review -- Joe, is that correct?

MR. FITZGERALD: That's right.

MR. GRIFFON: And maybe we'll hear more about that in the full Board meeting, but they've provided a preliminary review. NIOSH has not had an opportunity at this point to respond to that, but at least we've got progress on that. All right, 1-C -- and this talks about the choice of the 50th percentile intake rates. This is basically talking about a coworker model and what's the appropriate way to model, given different types of jobs or different -- I guess primarily based on job that you're looking at. Some of the actions -- the first

one, is there any update on the departments and their associated names and dates of when they were in effect?

DR. NETON: No, I don't have any update on that issue, but number two, we did forward the list of the -- that spreadsheet that everyone was looking for that had the 40 functional groups that were collapsed. But I'll still need to work with ORAU on getting the department listing put together, to the extent we can.

MR. GRIFFON: Okay. The third item is something that -- that there's -- it's the question of whether the most exposed individuals or most exposed departments were sampled or monitored. And I think there's been a number of analys-- analysis on this issue, but I don't think we -- well, I guess we were going to look into that issue further, especially after the last workgroup meeting. We had some discussions about --

DR. NETON: Right.

MR. GRIFFON: -- it may not have been all the most exposed workers but rather it may have been based on the high priority departments

that the sampling was done.

DR. NETON: Right, if you remember at the last Advisory Board workgroup meeting on the 8th, Bob Presley raised an issue that -- it seemed to cast this source of data in a slightly different light. ORAU has since gone back and interviewed Mr. Presley and I think we've -- they've clarified what at least the -- you know, the intent of his comments were, and also ORAU is going -- trying to refine their analysis to a larger degree for the internal dose area where we weren't as clear that the highest exposed workers were monitored. That was the subject of the debate, I believe. External dosimetry-wise, I think we've provided a fair amount of documentation to support that conclusion, but we're still working to refine the internal dose issue.

MR. GRIFFON: And you said you clarified --

DR. NETON: Well, I don't -- I'm not -- I don't have the report, but I know -- I think this is true, Mr. Presley -- that ORAU did have a follow-up interview with Bob after the Board meeting to try to figure out exactly what -- you know, what he was saying because it was a

little confusing to us at the meeting as to what he was really relating.

MR. GRIFFON: And the outcome of that? Or -- or--

DR. NETON: You know I -- I've not seen the report.

MR. GRIFFON: Okay.

DR. NETON: I wouldn't comment at this point.

MR. GRIFFON: All right. I don't know if -- Bob, if you want to speak to that now? Okay.

MR. PRESLEY: I'd like to see the report.

MR. GRIFFON: Okay.

DR. NETON: I would say that I think it's not inconsistent with what our thinking was prior to Mr. Presley's remarks, but I can't go any further than that. I'm not aware of all the details, but that's my general impression.

MR. GRIFFON: All right. Item 1-D and E -- these sort of got blended together -- type F uranium exposures and 48-hour delay in sampling.

DR. NETON: They're blended together because it's our opinion that if the 48-hour sampling issue goes away, the type F no longer becomes a limiting --

MR. GRIFFON: Right.
DR. NETON: -- nuclide solubility class. Dave Allen is working closely with Joyce Lipsztein from Brazil on this issue. They had some difficulty in connecting over the holidays. The analysis is still going on. We think we're pretty clear now on what Joyce's thoughts are on this and Dave is working on a refinement to that analysis which will I think -- right now he's trying to demonstrate that it's our belief that it was not always 48-hour sampling. There was a significant percentage of the routine samples that didn't wait for 48 hours. And if we can pull those out, it will demonstrate that the effect is minimal on the waiting period, and we need to finish that analysis. We're (unintelligible) in process.
MR. GRIFFON: Okay. 1-F overlaps with previous action items so I won't look at that, this is the job description question.
Going on to external radiation issues, external exposure issues -- again, the first section, 1-A, looks at the validity of the data and explanation of coworker models. I think I mentioned this already, maybe ahead of time,

but the -- this item 1 -- this CER database has been expanded to include up to 1965, as Jim indicated. And it has -- they have added job titles for those data. I think SC&A has received that and took -- had a preliminary look at it. I'm not sure how extensive their comments will be but they have some comments I think to offer this afternoon so...

Let's see, adding job titles is number two, actually. Item three, I'm not sure that we have any action on this particularly.

DR. NETON: Yeah, I expected that -- to have that information by now. Unfortunately, I don't, but I think it will be forthcoming.

MR. GRIFFON: And then item four is the hard copy which I think is pending Bill's investigation.

DR. NETON: Right, that -- that's very similar to the external dosimetry issue raised in comment -- or item number one.

MR. GRIFFON: Internal item 1-A.

DR. NETON: Internal dose item 1-A. So yeah, that -- that's just the validity of the database or reliability of the database issue.

MR. GRIFFON: Right. And the same thing for

the fifth item I think. It's the quality control question again, looking for past procedures.

DR. NETON: Right. Yeah. We're moving on both paths, both reliability of the internal data and the external data.

MR. GRIFFON: Okay. All right, 1-A-4 -- I skipped 1-A-3, 1-A-4 --

DR. NETON: Yeah, that's a very interesting observation. I've gone back and reread ORAU Report 22. And if you look at it in detail, what it really did was evaluate both the internal and external dosimetry data available in NIOSH's HERB data holdings. And so it was not -- although one would think that the HERB data holdings would be, at a minimum, a subset of the CER data, I don't know. And so that data comparison really, in my opinion, is not valid for this exercise because it really was not an evaluation of the CER dataset themselves. I'm not exactly sure why it was done. I'm trying to get to the bottom of that.

MR. GRIFFON: I guess the question that I raised on this was if it could be done on that, why not on the CER database. But maybe it was

HERB being compared to the CER, I don't know.

DR. NETON: What -- what they actually did was pull a hundred cases -- I think it was a hundred -- a hundred cases that we had in our possession for claims and matched them against the data that were in the HERB database and found a 90 percent comparison. Now you have to be careful what you mean 90 percent, were 90 percent of the cases there or were there disconnects. It's not clear from that report. But again, that's very different than looking at the CER data holdings and comparing that to the -- sort of the raw records. Because we do believe that the CER data we have is identical to the data that the DOE is providing us because they are actually the same database.

MR. GRIFFON: Right.

DR. NETON: See, I think the HERB dataset was -- the genesis of that was for an epidemiologic study, so the issues that the working group raised a while ago about, you know, the reliability of an epi dataset to do dose reconstructions is valid. But you know, we put that issue to bed since we've demonstrated the CER data holdings are actually the Y-12 data

holdings.

MR. GRIFFON: Right, right.

DR. NETON: So that report is not really applicable to this analysis.

MR. GRIFFON: 'Cause really it is comparing HERB with CER sort of through the claims, 'cause it --

DR. NETON: Yes, exactly. Yeah, it is.

MR. GRIFFON: -- (unintelligible) rely on the CER (unintelligible).

DR. NETON: Right, but I can't -- I can't vouch for what was in the HERB holdings other than they were collected for an epi study. And so, you know, it would seem to us the best comparison would be what we currently are using, which is the CER dataset.

MR. GRIFFON: Okay. I'm not sure what further action --

DR. ZIEMER: It's (unintelligible) o'clock. Does that put that one to rest now or --

DR. NETON: Well, in my opinion it does. Although I can't take items off the action list unilaterally, but --

DR. ZIEMER: No.

MR. FITZGERALD: Yeah, you know, I guess we had

the same reaction perhaps that you did, and going through the site profile was just confusing, unclear why that statement was made and the reference to the report was made. This actually makes a lot of sense, but I'm just saying that when we went through it, that just stood out as an aberration of sorts and we just wanted to clarify what this 90 percent comparison had --

MR. GRIFFON: Now I'm confused why it was ever done, but that's another issue.

DR. NETON: Well, there's that. It also takes the 90 percent comparison off the table because I don't have to justify why it was --

MR. GRIFFON: So I think the issue, the way it was framed, is off the table -- in my opinion, anyway.

DR. NETON: Yeah, I believe so.

DR. ZIEMER: It appears to be a closed issue.

MR. GRIFFON: Although I'm just a member of the Subcommittee, you know.

DR. NETON: Yeah, I'm still trying to get to the bottom, and I will provide an answer when I find it, why that was done in the first place. I suspect that they were attempting to use the

HERB data before the CER data were, you know, looked at or -- I'm not sure, but...

MR. GRIFFON: Okay, so going on to 1-A-5 -- I think we're up to 1-A-5 -- and I think we had a response to this that was...

DR. NETON: Right, this --

MR. GRIFFON: Approximately 12 percent or some -- was that the number?

DR. NETON: No this had I think more to do with the --

MR. GRIFFON: Oh, no -- yeah, this is --

DR. NETON: -- 1-A-6 is where we're at, is that right?

MR. GRIFFON: Yeah.

DR. NETON: Yeah, that had to do with these spreadsheets, and it was clear in my mind during the working group meeting, but I have since lost focus on this. I'm not exactly sure exactly which spreadsheets this ref-- is referring to.

MR. GRIFFON: This is my -- I was looking for -- I wondered where this one went. Yeah, this is the thing I've been asking for for a while. And I think the same situation exists here, Jim, is that it's somewhere on the O Drive but

you haven't -- you haven't put it in one spot for us, so --

DR. NETON: I guess the question that we have is are these the spreadsheets that were used to create the coworker model for the external dose results, or are these the worksheets that are used to do dose reconstructions?

MR. GRIFFON: No, no, the -- the prior. The first one you said.

DR. NETON: So they were spreadsheets --

MR. GRIFFON: For the external and internal, so you have the two.

DR. NETON: Yeah, the external spreadsheets --

MR. GRIFFON: Where the crystal balls models A through H I think or A through --

DR. NETON: Well, it wouldn't be crystal ball models, it would be --

MR. GRIFFON: Well, there's --

DR. NETON: You're looking for the data, actually.

MR. GRIFFON: Yeah.

DR. NETON: Maybe this would -- for the external comparison, this may tie into the 147 data --

MR. GRIFFON: It may, yes.

DR. NETON: -- points so -- okay, so that makes more sense to me.

MR. GRIFFON: For the internal, you know, I've got this -- these spread sheets that are annual spreadsheets which basically pull the CER data in and --

DR. NETON: Right, and that's really what was used. I mean those are --

MR. GRIFFON: Right.

DR. NETON: -- those were used to generate lognormal distributions for every year from --

MR. GRIFFON: Right. But I don't think SC&A has even seen those. That's my understanding.

DR. NETON: Okay --

MR. GRIFFON: I just wanted to get everybody on the same page with all these different spreadsheets.

DR. NETON: Okay. Well, those are there. I need to find out where they are. I thought they were on the --

MR. GRIFFON: Again, I --

DR. NETON: Okay.

MR. GRIFFON: -- again, I think they're on the O Drive. They're probably not in one consolidated position.

DR. NETON: Okay.

MR. GRIFFON: And what I -- I think -- from my standpoint, I wanted to make sure I was looking at the final revision of whatever was being used.

DR. ZIEMER: Well, it's not clear to me now what the answer to the original question is. The original question on the percentage -- are we on 1-A-5 or A-6?

MR. GRIFFON: A-6.

MS. MUNN: A-6

DR. ZIEMER: Oh, on A-6.

MR. GRIFFON: Yeah, we skipped over A-5.

DR. NETON: I don't have an A-5 on my list, for some reason.

MS. MUNN: A-5 is done.

DR. ZIEMER: A-5 is done. Okay. But then A-6, whether the coworker models presented are sufficient for use in estimating pre-'61 exposures. The answer is?

MR. GRIFFON: The answer is that we hadn't had a -- SC&A hadn't seen these tools that were used. They've seen the procedures or the TIBs but they haven't seen the tools behind the TIBs, I guess.

DR. NETON: They're not -- they're not necessarily tools. They'd be analysis files, I think is what you're referring to.

MR. GRIFFON: Analysis files, I'm sorry. Analysis files.

DR. NETON: A tool is sort of like a workbook where you would --

MR. GRIFFON: Okay.

DR. NETON: I don't want to get hung up on vernacular, but yeah.

MR. GRIFFON: Yeah, yeah, yeah.

DR. NETON: Okay, well, that's clear in my mind then. I was not sure what -- I thought you were referring to a dose reconstruction tool, which is different than the analysis files.

MR. GRIFFON: We're still -- after all these years, we're still (unintelligible).

DR. ZIEMER: So these are the analysis files used for coworker...

DR. NETON: Used to develop the coworker TIB, that's my understanding, and those were some pretty sophisticated statistical analyses using various statistical -- you know, maximum likelihood estimators and that sort of thing.

There's another --

MR. GRIFFON: I think where this came up was at the last workgroup SC&A raised a question about were the zeroes considered in back-calculating the internal dose for the coworker models.

DR. NETON: Right.

MR. GRIFFON: And it was clear to me then that they hadn't seen the spreadsheets because if they had they would have how they were used.

DR. ZIEMER: Sure.

MR. GRIFFON: Or -- so I just wanted that to be out there so everybody was on the same page.

DR. ZIEMER: Okay, but there's still two parts to this then. One is making those available and the other part is still --

MR. GRIFFON: Is how -- right.

DR. ZIEMER: -- the sufficiency question will remain and --

DR. NETON: Well, yeah, I think the second part here is we had talked about arranging a technical meeting with the authors of the TIB that generated the coworker distributions and such, and we're prepared to facilitate that and -- possibly after these spreadsheets become available -- we would like to hook up our ORAU

folks with whoever on the SC&A side and our Board side want to participate. Because I think there -- you know this is a very sophisticated technical issue that really would be best handled in that setting.

MR. GRIFFON: I agree, yeah. Yeah. Okay, going on to 2-A, badging of maximally exposed individuals. Previously we discussed the monitoring, which would have been the -- primarily the urinalysis monitoring. So this gets into the question of whether the maximally exposed individuals were badged, and --

DR. NETON: Right. Yeah, and that, as far as -- is this an external issue?

MS. MUNN: Yes.

DR. NETON: This is similar to the other issues, but external-wise we provided a number of pieces of data that tend to support our position that -- the item two I think is one that is still out there, which is related to the criticality accident where workers -- some workers, at least --did not have badges on. It raised the question in ORAU's minds if everybody was badged, as should have been, why weren't workers who were in an -- who were

exposed to a criticality not wearing badges. And we do have a draft report -- or a report I think that I'm going to receive from ORAU that goes over this incident and discusses it in some detail. I think you'll find that the thinking at the time that if workers were in the area was there were -- there was no radioactive material there. The tanks had been cleaned. And what happened was a valve had been left open that leaked radioactive materials into the area. So it doesn't necessarily cast doubt on the -- at least the concept that was in place at the time. Now an incident occurred, for sure, but it doesn't -- it doesn't discredit the fact that the program at the time was badging people that they thought were the most likely exposed. I mean, they weren't expecting a criticality, obviously.

MR. GRIFFON: I think the other thing that has occurred on this item in between meetings is that SC&A has done some follow-up on -- previously ORAU -- I think it was at the last workgroup meeting ORAU and NIOSH provided a report on this -- on demonstrating or looking

at the fact that statistically -- statistical analysis of the fact that they felt that the highest exposed workers were in fact the ones that were monitored, and I think SC&A has had an opportunity now to review that further and may -- may report back on that.

MR. FITZGERALD: Yeah, I mean this is going on in real time and the expanded external database of '65 was very helpful and we were able to do some initial sorts this past week that allows us to kind of look in more granularity on these various years -- pre-criticality, post-criticality and '61 to '65 -- just to see what the numbers look like and the averages. And I think we still have some questions. I think the data is still, in my view, equivocal about this notion of the maximally-exposed individual being badged throughout that whole time frame. I think what we're seeing is that as you get further back in history, maybe the early '50s, I'm not sure that holds necessarily. But you know, again, we're sort of in this mid-way, haven't seen the 147 records yet. There's other things I think will help us get there and I think this has been a very fruitful thing. but

I think the data kind of -- kind of points you in the right direction. I think data in this case is going to be very helpful to -- to put a punctuation point under this issue.

MR. GRIFFON: So this is certainly still a pending action here or pending item, yeah. 2-B is the assignment of the coworker dose. I think there has been some update on TIB-51. Can someone -- Joe, did you guys review TIB-51 and...

MR. FITZGERALD: Yeah, we did. Again, this is all in the last couple of weeks, but we have provided -- as of last Thursday, so this is fairly recent -- a set of comments. And we can talk about this again in the next session, but in general we thought it was a strong step forward, a pretty sound analysis. There are some issues and, again, we identified some of those issues, clarifications and questions about bases. But certainly it's responsive to a number of the issues that we were concerned about.

MR. GRIFFON: Should probably TIB-51 is --

MR. FITZGERALD: Oh, I'm sorry --

MR. GRIFFON: For the audience I should

(unintelligible) --

MR. FITZGERALD: Yeah, the TIB-51 deals with the angular dependence of neutron dosimetry, as well as the energy threshold of a film that was used for neutron measurements back in the early days, '50s and '60s. It's called NTA film and, again, it wasn't very responsive to lower energy neutrons, the -- more responsive to the higher energy neutrons. So there was a discrepancy in terms of the exposure for those lower energies. And this certainly provides I guess some conversion factors which can be applied that would correct for that. And I think that was a good analysis.

MR. GRIFFON: And the second action on there, Jim, is there any update on skin, skin (unintelligible) --

DR. NETON: I'm still waiting on an update from ORAU on that.

MR. GRIFFON: All right. I think that takes us through sort of these major pending issues for the --

DR. ZIEMER: Okay. And Mark, on your workgroup, you had Bob Presley, Wanda Munn, and was Mike Gibson -- and let me ask any of the

other members of that work group, do you have any comments to add on the matrix or related items?

MS. MUNN: Mark's done a good job of rolling it up.

DR. ZIEMER: Now, when we have the full Board session which is going to start in just a few more minutes, we're going to return to this. We will have a more formal presentation on the status of the Y-12 site profile as it pertains to the SEC. Let me just allow -- any other Board members that have comments or questions for Mark? This doesn't require any action. It basically is a status report to update us on where they are on -- in terms of the progress on the matrix. If that's -- if there are no comments, we're going to take a brief recess of ten minutes and then the full Board will convene at 2:00 o'clock for the regular Board session. So the subcommittee stands adjourned.

(Whereupon, the meeting adjourned at 1:50 p.m.)

CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA

COUNTY OF FULTON

I, Steven Ray Green, Certified Merit Court Reporter, do hereby certify that I reported the above and foregoing on the day of January 24, 2006; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 7th day of March, 2006.

_____

STEVEN RAY GREEN, CCR

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